Gas Journal

JANUARY, 1958 | Only Magazine Edited Exclusively for the Gas Distribution Industry

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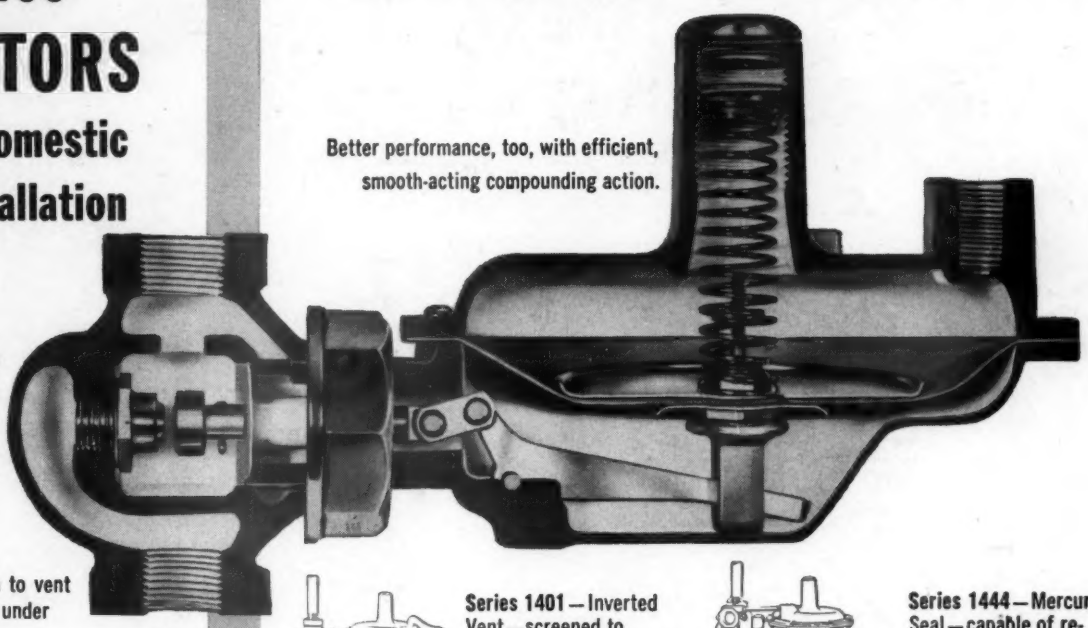

area passages from orifice to vent for emergency gas escape under s pressure.

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hable meter bar for compact and nient installation.

y of sizes and styles of vents ent caps.

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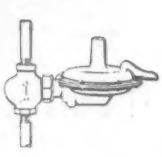
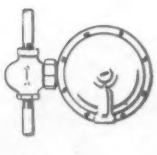
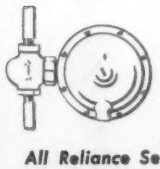


Series 1401—Inverted Vent—screened to prevent entrance of foreign material

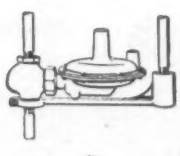


Series 1402—Vertical Diaphragm—large area screened vent prevents water and foreign matter from collecting on diaphragm.

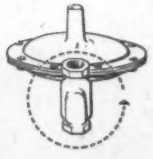


Series 1403—Horizontal Vent.

Series 1444—Mercury Seal—capable of relieving the full capacity of the regulator.



Series 1500—Meter Bar available with 6-inch and 11¼-inch centers. Provides a solid support for the meter.



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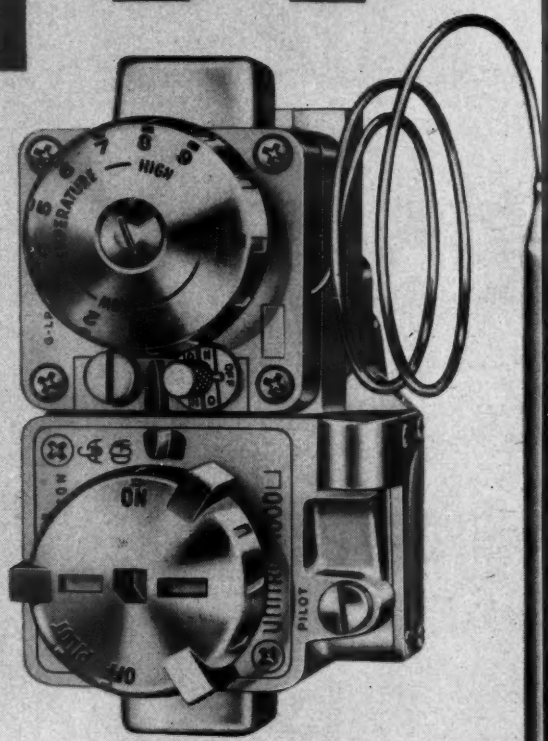

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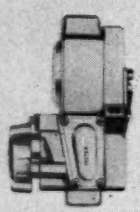

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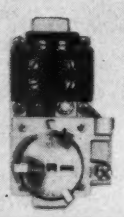

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January, 1958 Vol. 185 No. 1

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Fuel for Thought

Decision By U.S. Court of Appeals for the District of Columbia Circuit should have every person connected with the gas industry thinking . . . the decision could work a greater hardship on the industry than the Supreme Court decision in the Phillips case. Essentially, the appeals court decision, in the case of *Memphis Light, Gas, and Water Division vs. the Federal Power Commission*, was that a gas transmission company could not file an increased rate with the FPC unless the new rate was specifically agreed to by the purchasing company. Ordinary procedure under the Natural Gas Act has been for rates to go into effect under bond and subject to refund after the FPC held public hearings.

Appeal of this decision will no doubt be taken to the U. S. Supreme Court — and a stay of the lower court order may be given in the interim. Review of recent decisions by the U. S. Supreme Court on a variety of matters (particularly in the Phillips case) seems to warrant the opinion that the lower court ruling might be upheld. It becomes more apparent daily that the language used in legislation, such as the Natural Gas Act, cannot be expressed too plainly. Black and white no longer exist — only shades of gray. Interpretations are made where none justifiably exist.

What this lower court ruling means is simple enough: If a retailer of natural gas refuses to agree to a new rate in bargaining with a transmission company, then such a rate increase, even if proved valid and necessary and granted with FPC approval, would be considered illegal. By merely saying "no," the retailer could force its supplier — the transmission company — to operate "in the red," especially if the transmission company was forced by contracts to pay more for the gas it buys, or if its operating expenses continued to increase.

Eventually, we could reach the point where the vast transmission industry could be completely bankrupt — and then the cries would go up for "government control and operation" of that phase of the gas industry.

Proponents of a nationalized gas industry would like nothing better. The dies for such a nationalization have already been cast — federal control of independent producers, and now this recent lower court ruling.

If the gas industry is to remain a part of free enterprise, it is going to have to speak up for new legislation to correct the evils wrought by court "interpretations," which are merely another guise for a new type of legislation by judicial mandate.

★ ★ ★

In This Issue

Fastest Growing Maior Industry in America is the way one contributor to our "Outlook for 1958" section terms the giant gas industry. He and 20 other industry leaders express their views on current and future happenings in the gas industry. From what they say, and what we learn daily in reports from gas utility firms across the nation, it appears that 1958 will be one of the best — if not the best — ever recorded by our industry.

One of the Finest Meter Shops we've ever seen is the unique new layout just put into operation by Lone Star Gas Company at its Central Service Center in Dallas. The new shop, described by author A. B. McCurdy — who, incidentally, was responsible for much of the planning of the shop — combines all of the elements of modern materials handling with modern meter shop equipment to provide a functional, smoothly-operating layout.

Where Gas is Growing is of interest to everyone in the gas distribution industry. Beginning with this issue, we have a new monthly feature, *Distribution Developments*, which will provide you, in each issue, brief but comprehensive reports on where distribution construction projects are being laid — or will be built. Reports will be both verbal and graphic, with photographs from interesting jobs highlighted.

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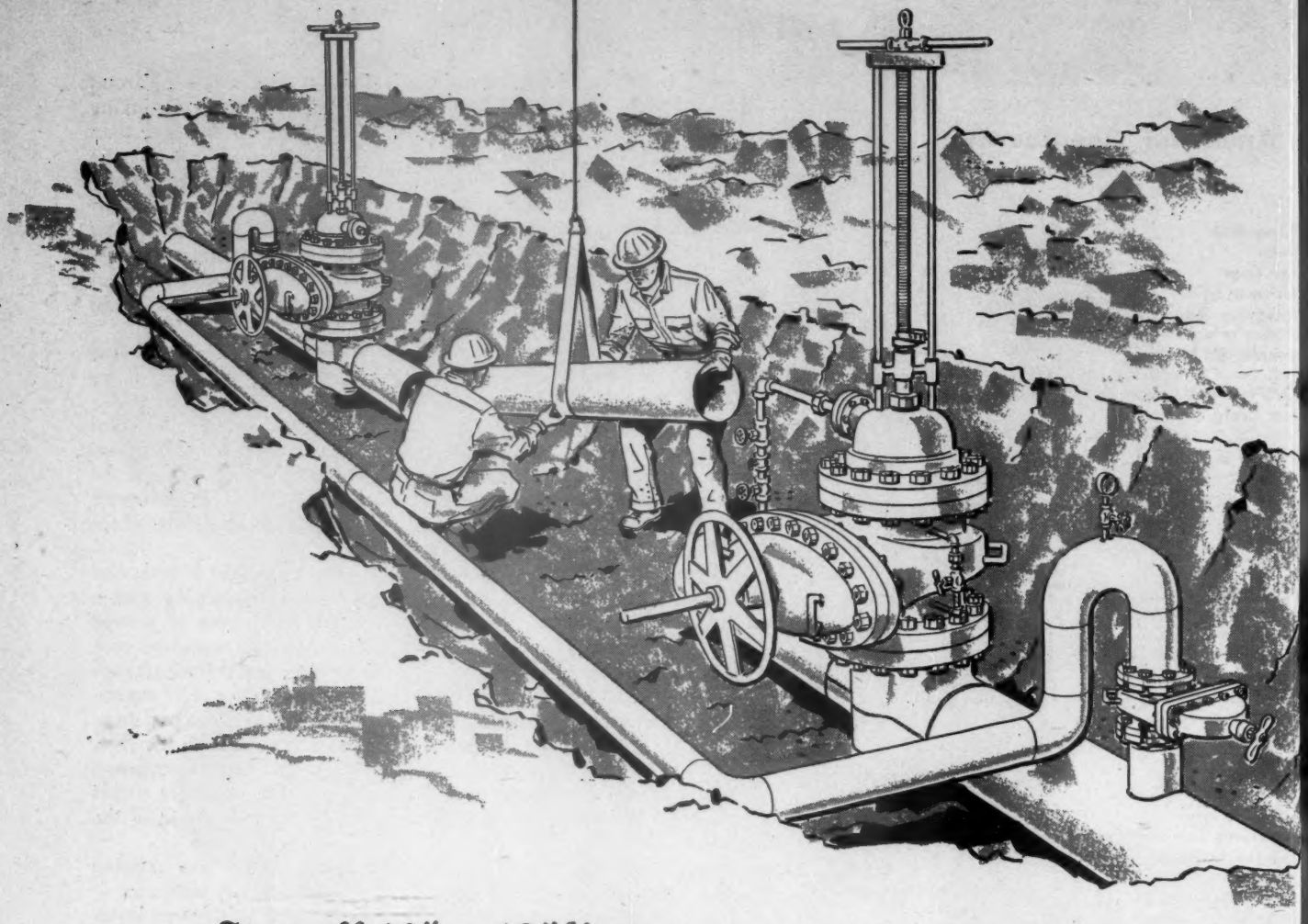

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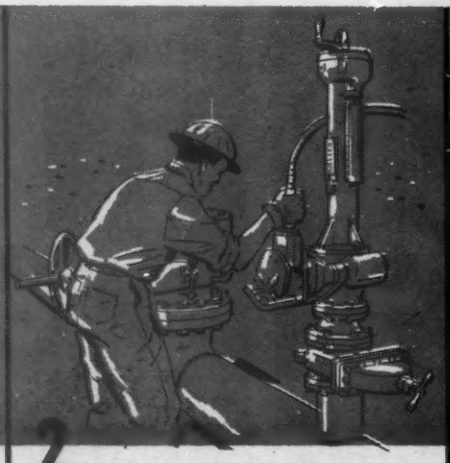

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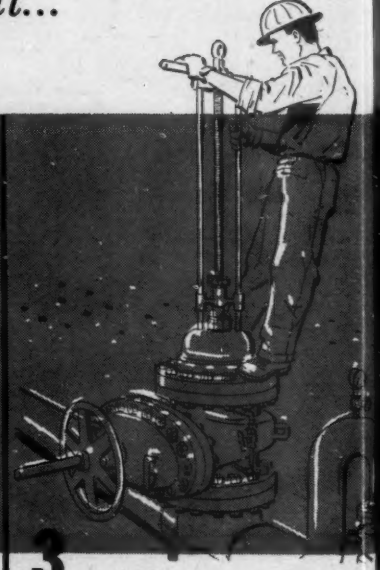
COMPLETE BY-PASS! Drill through nipples with Mueller C1-36 or CC-36 Drilling Machine. Close gate valves, install by-pass line and place in service by opening Drilling Nipple gate valves.



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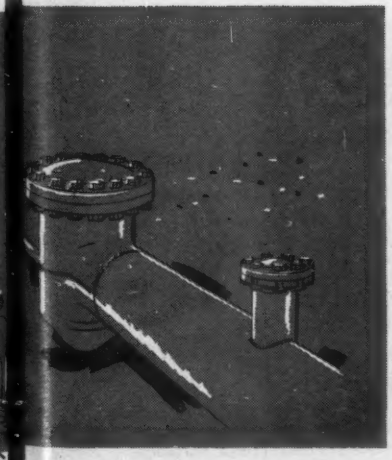

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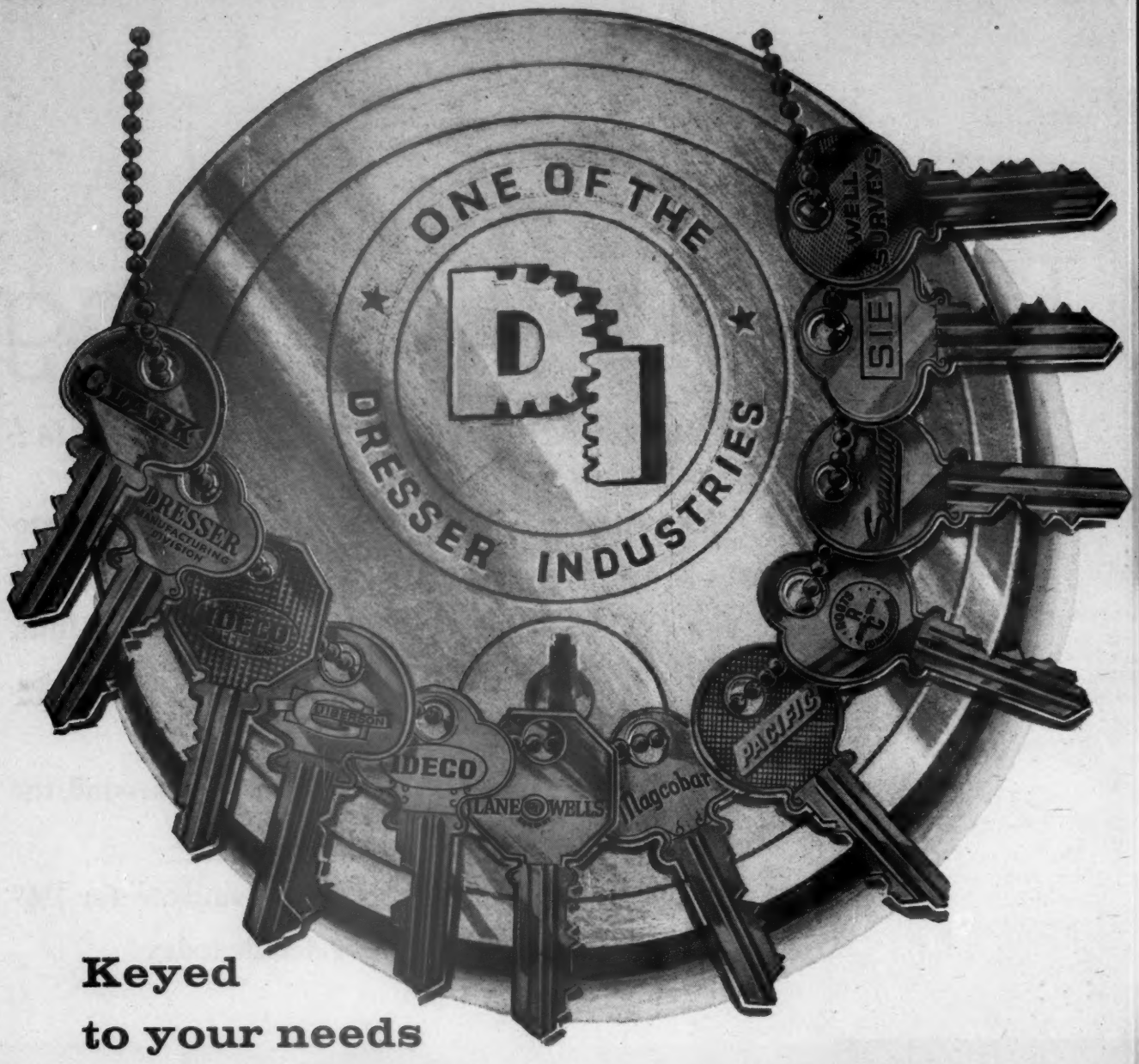

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Model 711 for widely scattered jobs. 45 m.p.h. travel speed. Digs to 5' deep and 18" wide. One-man operation. Hydra-Crowd assures maximum crowding speed for every digging condition.

Model 702 for narrow trenches to 5" wide, 40" deep. Ideal for cable, conduit, or small pipe. Easily moved. Varidraulic drive gives finger-tip control of crowding speed from 0 to 20 ft. per min.

Model 44-C for heavy-duty trenching. It cuts to 8'3" deep, 24" wide. 15 digging speeds from 1 to 11 ft. per min., or available with Hydra-Crowd with infinitely variable speeds from 0 to 7 ft. per min.

Literature on request.

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CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

Legal Robbery. The Supreme Court, in effect, has upheld the right of a court to ignore claims of local gas utilities to receive refunds on excessive gas rates paid by the utilities to a pipeline company. Instead, the refunds will go to consumers — **who never paid the increased rates.** Case in point is one in which a U. S. Court of Appeals ruled final consumers were entitled to refunds in instance where Northern Natural Gas Company, an interstate pipeline company, charged five Iowa public utility companies rates termed too high by the FPC. Northern Natural appealed an FPC order nullifying the two proposed rate increases, received a court of appeals stay on the FPC order, and for more than a year collected the higher rate. The appellate court subsequently upheld the FPC order and then ordered the refunds paid to the utilities' customers. The utilities protested — since they paid the increase without passing it on to their customers. The companies argued that, in effect, the FPC was lowering local gas rates, which neither they or the court had the right to do. The FPC, however, told the Supreme Court that to "undo the wrong" caused by the court dispute, the ultimate consumer deserved the refunds. The FPC argued that the only reason the utilities failed to pass the rate increase on to its customers was that they "were earning a fair return" without the increased rates.

Steam electric generating plants in Southern California will get more natural gas under a long-term plan announced by Southern California Gas Company, Southern Counties Gas Company, and the Southern California Edison Company. Under the proposal, an exchange agreement, Edison will receive gas from the gas companies and they, in turn, will take gas the electric company contracted for from Richfield Oil Corporation. The gas will be made available on a "semi-firm" basis — subject to curtailment only to meet the needs of "firm" customers (mostly residential) of the gas companies.

Two giant parallel gas lines — including 8½ miles of 55⅜-in. and 4½ miles of 43¼-in. OD pipe, will be laid in the Monongahela Valley next year by Carnegie Natural Gas Company to supply coke oven gas to six Pittsburgh steel plants. Cost of the project is $15,000,000. New lines are to replace existing and smaller lines that are wearing out after 50 years of service. Lines will originate at the Clairton Works and end at the Homestead Works. Project includes a new mixing plant for mixing coke oven and natural gas. The new lines — with capacity of 225,000,000 cu ft per day at relatively low pressure, will be laid above ground for about two-thirds of their length.

Building construction costs in the U. S. continue to move upward. Through September, reports F. W. Dodge Corporation, construction news and marketing specialists, costs rose three percent for the 12-month period ending September 30. Ingredients for building almost anything from a resort cottage to a skyscraper were up 148 percent over 1941 counterparts. Labor costs, too, continue to rise and account for much of the composite cost rise.

Tappan Stove Company, which has built only household ranges for 77 years, has entered the home laundry field with a new automatic gas washer-dryer combination. The new unit is being manufactured by O'Keefe & Merritt, Tappan's wholly-owned West Coast subsidiary. Tappan thus becomes the third firm to offer a gas washer-dryer unit for the vast home laundry market. The new unit will be distributed initially to the West Coast market, Tappan officials indicated. They indicated that gas was selected for the drying cycle "because of the speed and economy of modern gas drying." The unit had been pre-tested for three years in both laboratories and homes.

Lake Shore Gas Company and East Ohio Gas Company combined in November to become one of the largest natural gas distributing organizations in the U. S. Addition of Lake Shore's 15,000 customers in northeastern Ohio gives East Ohio 750,000 meters in about 150 northeastern Ohio municipalities. Its service area now reaches from the western suburbs of Cleveland to the Pennsylvania border and south from Lake Erie to Youngstown, Ulrichsville, Dennison, and Wooster. In the merger, Lake Shore personnel are being absorbed into the larger organization.

Two prominent names in home heating have combined to create a large completely integrated manufacturing company in that field. Joining forces are the central domestic heating and air conditioning division of The Heil Company, Milwaukee, and the Quaker space heating firm of Lewisburg, Tennessee. The new firm Heil-Quaker, will have administrative and sales offices at Nashville, Tennessee. Quaker was formerly owned by the Florence Stove Company. Its plant at Lewisburg is one of the most modern and versatile in the heating industry.

Electric utility plants consumed 1,327,082,419,000 cu ft (that's 1.3 trillion) of gas during the 12-month period ending September 30, 1957, an increase of 9.8 percent over the previous 12-month period ending September 30, 1956, according to latest reports filed with the FPC. Interesting to note, especially in view of the intense competitive struggles between the two sources of energy, is that **this represents approximately 18 percent of all gas sold in the same period** (assuming that 1 therm equals 100 cu ft of gas on a 1000 Btu basis). AGA reported 74,228,000,000 therms in total utility and pipeline sales of gas during the 12-month period ending September 30, 1957, an increase of 2.8 percent.

Municipal utilities in Massachusetts will be able to borrow outside their debt limits to establish, purchase, extend, or enlarge gas or electric plants under terms of a bill filed for consideration by the 1958 Massachusetts Legislature. The measure was offered in late November by Senators John F. Parker, a Taunton Republican, and Maurice A. Donahue, Holyoke Democrat.

Missouri Transmission Corporation, a new firm, has applied to the state PSC for permission to construct a 256-mile, 16-in. line across Missouri to provide additional natural gas for Missouri consumers. The application carried an emergency factor because of plans to supply gas to a company now under contract with the Atomic Energy Commission. The line would enter southwestern Missouri from Oklahoma and go northeasterly to Pacific, Missouri. Initial planned capacity is 100,000,000 cu ft daily. The company plans to sell to retail distributors at any point on the line where customers applied. Gas for the line would be supplied by Mookl Chemical & Gas Corporation, of Tulsa, which would build a 169-mile, 16-in. line to deliver gas from Pottawatomie County, Oklahoma, to the Oklahoma-Missouri border.

why this key compressor station works dependably despite these

temperature extremes

Compressor Station One is the key supply installation on the sprawling Pacific Northwest Pipeline system. Located at 6000 feet elevation near Ignacio, Colorado, the facilities boost pressure of nearly 300-million cubic feet of gas per day from the San Juan Basin gathering system. This station feeds a nearby gasoline plant before starting the gas on the long haul to the Pacific Northwest market.

In such a key spot, dependability is essential. Fish engineers carefully reviewed possible causes of trouble long before thoughts went into plans.

Extreme temperature fluctuations—from plus 100 degrees F. to minus 20 degrees F.—posed unusual problems. Under these conditions, reliable temperature control was difficult to achieve.

To be sure of providing efficient jacket water and lube oil temperatures under all extremes of ambient temperature and load, Fish designers elected to use unitized systems. Under this system, each engine has its own atmospheric cooler to take care of jacket water and lube oil cooling loads. A system of temperature control instruments was installed to provide very close control under all operating conditions. As designed, this remote station demonstrates extreme flexibility with reliability.

This is but one example of the type of advanced engineering you get from Fish. In addition, the same quality service prevails from feasibility study to project completion. If you are contemplating new or expanded facilities in oil, gas or chemicals, consult with Fish.

the fish companies

FISH ENGINEERING CORPORATION
FISH NORTHWEST CONSTRUCTORS, INC.
FISH SERVICE CORPORATION

OUTLOOK FOR 1958

Future of the gas distribution industry is brighter than ever before . . . demand is huge, millions of dollars budgeted for expansion, customer total increasing rapidly, better appliances being developed, air conditioning program on upswing, sales programs are aggressive . . . here are the comments from 21 gas industry leaders on the outlook for 1958 for America's fastest growing big industry . . .

1958 Seen as Year of Growth

Exciting, Challenging Future Ahead For Natural Gas In Florida

G. V. Justin
Vice President-Operations
Peoples Gas System
Miami, Florida

Forecasting the future of the gas industry in the great state of Florida is an exciting challenge. With the anticipation of natural gas being available in the next 14 to 16 months, the appetite of the industrialist has been whetted for this excellent fuel. The industrial growth of the state has been expanding at a rapid pace in the immediate past and will continue long into the future. There are several reasons for this: Great expanses of reasonably priced level land; good railroads and seaports; year-around outdoor working conditions, and now, for the first time, sufficient supplies of excellent fuel at reasonable cost. We believe the coming of natural gas to our state is the greatest advent since the coming of railroads.

In 1950, Peoples Gas System was purchased and reorganized by the present owners. A tremendous program of production, modernization, operating improvements, and a marketing and promotion program has caused the company to grow from approximately 27,000 customers to well over 80,000 at present. With this kind of record on manufactured gas sales, we anticipate that natural gas will produce a doubling again of our gas sales in the next three years. Peoples Gas System is the oldest and now the largest gas system in Florida, serving 31 communities and cities from coast-to-coast of the state. We are ever in search for new talent and strongly follow a program of employee analysis and education to produce the backing of management with a strong organization of young blood, ready and eager for promotion, to fill the many positions caused by our rapid growth and expansion.

As to the future programs — to continue to serve the people of Florida — we are expanding our sales program to the extent that this year's sales and promotion budgets have been more than doubled, and our sales force is being increased. We will enter into a well-planned sales effort to secure the very inviting air conditioning market as a stabilizing factor for our annual sendout curve and a very profitable means of leveling the curve.

The water heating market in the Land of Sunshine — hotels and motels—is an ever-challenging sales area for load building. The arrival of natural gas will create for us a very close competitive market with No. 2 fuel oil that is so widely used for large quantity water heating. We will have well-trained engineers in the field to secure this load. With the addition of an engineering force to work with industry to make natural gas available for large loads on an interruptible basis, we will round out a picture of service and promotion that should result in the modest prediction of doubling our gas sales in the next three years.

Peoples Gas System is on the brink of one of the brightest futures it has ever had. We are facing it with confidence that, through the program outlined, we can serve the needs of all classes of customers with the finest service, fuel, appliances and equipment encompassing the most modern technological advances in design and utility to keep us Florida's largest gas system.

Continuing Gas Industry Growth Forecast For Vast Pacific Northwest

Charles H. Gueffroy
President
Portland Gas & Coke Company
Portland, Oregon

In the Pacific Northwest, natural gas customers will continue to increase at a much greater rate than in the nation at large during 1958. The six major gas distribution companies in the region have added 50,000 heating customers because of natural gas, which first arrived in the fall of 1956, representing a gain of 60 percent or more.

These companies will continue their promotional drive in 1958 toward catching up with other regions where gas now serves three of every four persons after some years of availability and selling effort.

After a slight slowdown in business generally, particularly in timber products, during the past year, Northwest is opti-

OUTLOOK FOR 1958

mistic of an upturn in 1958. New home building, which declined about 20 percent in 1957, faces better prospects from the financing standpoint. The new homes trend is important in this area, for natural gas has been selected for 60 percent or more of the units started within reach of utility mains.

New sign-ups among industries for interruptible gas will taper off in 1958 — not because natural gas is any less popular, but because most of the major plants had already signed by the close of the year. Interruptible-type contracts thus far call for six times the volume sold for **all** purposes in the last year of manufactured gas operations. Northwestern gas utilities now will concentrate on selling a higher ratio on a firm basis.

Although new capital will continue to command high interest rates in all probability, the Northwest's companies generally will forge ahead with construction programs. Portland Gas & Coke Company, for example, expects to spend about $6,000,000 on building and expansion, just about the same as in 1957.

The needed volumes of natural gas for future expansion became reality near the end of 1957, as the first Canadian gas began flowing across the border. The extensive Peace River fields are expected to become the Northwest's dominant source.

Gas Air Conditioning Promotion Seen As Biggest Revenue Potential

R. A. Puryear, Jr.
President
Alabama Gas Corporation
Birmingham, Alabama

IT IS MY BELIEF that the gas industry has a bright future with years of growth and expansion ahead. To say that the gas industry or Alabama Gas Corporation does not have problems would not only be less than the truth, but would be an attempt to kid ourselves. Sure — we have problems. Such things as the increasing cost of gas and the possibility of deterioration of our competitive position; the problem of getting regulatory authorities to recognize the need for higher rate of return to meet higher cost of capital funds; competition from the electric industry, particularly as relates to heating with resistance heat and the heat pump. These, of course, are major problems. I do not believe, however, that they are insurmountable, nor that we will be unable to successfully overcome them.

During the past five years, Alabama Gas has increased the average number of customers served by 58,000, or an average annual growth of 6 percent compounded. During this same five-year period, new capital invested in plant was $19,437,000. We believe that the area in which our company operates will continue to grow and expand and that Alabama Gas will keep pace with that growth.

One of the major objectives of our company during the next five-year period is that of securing our share of the air conditioning load. From 1948 through 1951 we actively promoted the sale of Servel gas air conditioning units and only discontinued this activity due to change in policy of the manufacturer. We are now re-entering the promotion of gas air conditioning equipment and firmly believe that with the Ark-La Servel year-around units, and others that we expect to be on the market before too long, we will secure our share of this desirable load. Studies of our own situation indicate that the additional revenues from gas-fired air conditioning represent the largest potential source of additional revenue to our company. We believe that this is largely true of most gas distribution companies and that the development, promotion and sale of such equipment by the industry should be our most important objective.

Southern Counties Gas Sets Second Biggest Budget for '58

Guy W. Wadsworth, Jr.
President and General Manager
Southern Counties Gas Company
Los Angeles, California

For the fourth consecutive year, Southern Counties Gas Company of California has made provisions to connect more than 50,000 new meters to its lines — anticipated growth in 1958. To take care of these new customers and its other consumers, the rapidly growing California utility has set up the second largest budget in its 47-year corporate history.

Only 1957's budget of more than $24,000,000 exceeds the $22,000,000 that Southern Counties has slated to be spent in 1958. The 1956 budget of the Pacific Lighting Corporation subsidiary was more than $19,000,000.

Nearly half of the 1958 budget — or $10,000,000 — is being allocated for equipment to bring gas service to customers not now connected to the company's lines. Altogether, Southern Counties in 1958 expects to add 1136 miles of mains of various sizes to its distribution system.

At the end of November 1957, the utility was serving 634,830 customers in a 1200 sq mile service area, bounded by Paso Robles, in the north, and San Clemente, in the south. A projection of customer growth indicates a total of 638,000 customers at the end of 1957.

Other major expenditures planned in the 1958 budget are $4,000,000 for replacement and relocation of various lines, and $2,700,000 for new buildings, including a 13-story headquarters facility announced earlier for construction in downtown Los Angeles.

The sum of more than $3,800,000 is being set aside for improvements to the company's transmission system, part of which is jointly owned by, and operated with, its affiliate, Southern California Gas Company.

At a cost of more than $3,000,000, a new compressor station to push gas through the two California distribution utilities' new 285-mile Needles pipeline is due to be completed shortly on a 60-acre site, south of Needles and eight miles west of the California-Arizona border. Investment by the two companies in the Needles line and compressor station is expected to mount to more than $33,500,000, bringing investment in the two companies' transmission system to nearly $89,000,000.

OUTLOOK FOR 1958

Building Public Acceptance Means Building Bigger Gas Loads . . .

S. D. Whiteman
President
Kansas-Nebraska Natural Gas Company, Inc.
Hastings, Nebraska

Throughout the nation, the gas industry in 1958 will again experience continued growth and expansion. Demands for service continue unabated to a large extent, and the industry will be required to devote all of its energies and resources to the task of providing greater service to the public.

In our market area of western Kansas and Nebraska and northeastern Colorado, we look for a continued steady market saturation. We feel that we are doing the best job possible in selling the advantages and conveniences of gas, and public acceptance can be readily seen in gas appliance sales by dealers in our area and by our own sales staff. This, of course, means increasing gas consumption. That is our primary purpose: To build the gas load on our system. And, gas burning equipment must be sold to accomplish that purpose.

A large electric generating plant will begin operation in our area in 1958. It will be fired by natural gas from our system. This is a very favorable type of market for us as well as for the plant itself, since it will experience peak load periods at times when we can supply the greatest possible amount of gas. A reasonable rate for the gas thus consumed will be reflected in advantages to electric consumers, and, at the same time, will benefit our customers by providing a market for our gas during off-peak periods.

We have always actively promoted gas for air conditioning and feel that we have experienced a reasonable amount of success. There appears to be a tremendous potential in this field, and we believe that in 1958 the biggest advances in marketing gas in our area will be through air conditioning.

A recent experience demonstrates this potential market. A large industrial plant located in our area, and it is completely air conditioned by gas. The management of that plant feels that its several hundred employees will be much more interested in home air conditioning now since they will be working in a pleasant atmosphere all day and will want that comfort in their homes after working hours.

We look for continued demand for natural gas for use as irrigation pump fuel. Kansas-Nebraska lends all of the encouragement at its command to this type of improvement in farm practices so that our agricultural economy can reach a greater state of stabilization.

Furthermore, we can reasonably anticipate that more industries will be locating in the Great Plains area because of the abundance of natural resources, favorable tax and labor laws, and a healthy business climate. This will provide further diversification of activity to give us an even firmer economic base.

We can be sure that technological improvements will continue to add to the efficiency of our operations. Recently we have added telemetering devices and microwave to our system, and coming years will see more developments in this area. The purpose is to provide more dependable and efficient service to our customers.

In general, then, the outlook for Kansas-Nebraska is good. We do not delude ourselves, however, into disregarding the cold, hard facts that as a regulated public utility we will face some extremely serious problems in the near future. This is true in our local area as well as on the national level.

Our company, and the gas industry as a whole, will be devoting more and more energy to informing the public of the vital role of natural gas companies in the American way of life. It is one of the greatest single factors contributing to our national interest and general well-being. We are confident that the discerning American public will recognize the importance and seriousness of our problems and will demand equitable solutions.

1958 Seen as Even Better Than 1957, Air Conditioning Sales To Rise

B. C. Adams, Sr.
Chairman of the Board
The Gas Service Company
Kansas City, Missouri

As a forecaster, I am not an expert, but in this predominately agricultural area with a growing, well-diversified industrial economy, I am convinced that 1958 will be a better year for us than 1957. Of course, as elsewhere, residential building has fallen off due to tight money. Nevertheless, Greater Kansas City should add about 6000 new homes in 1958 and the balance of the territory 4000 to 6000 more.

Our total sales of gas should increase three to four percent. This is not a very high figure, but it should be remembered that we have been in the business here a long while with a highly saturated market. Practically every home in the area heats with gas. The up-grading of gas consuming appliances has improved our competitive situation. I have particular reference to gas ranges, especially the burner with a brain. There still needs to be developed in this field a gas range with a flat top to overcome the objection that housewives have to the elevated grill.

We have done better this past year with home air conditioning, as I think has been the experience with other companies, but we are still looking for home units at lower cost to make them more competitive. In this area, operating costs are substantially below the electric units. There is a tremendous potential in this field. From information I gather from the manufacturers, I think that within another year we will be in business.

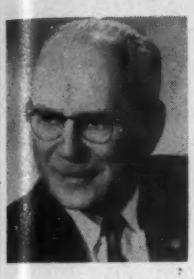
We have been getting better advertising coverage from dealers and manufacturers. I think this will continue.

Are we getting our share of trained engineers and other professional personnel from graduating classes? My answer to that is "yes."

If the pipeline companies spent less polishing up their halos and were to do their share in promoting the sale of gas consuming devices it would give the industry a big shot in the arm.

OUTLOOK FOR 1958

Strong, Vigorous Budget Set By WNG To Meet Increasing Demand for Gas



Chas. M. Sturkey
President
Washington Natural Gas Company
Seattle, Washington

The Washington Natural Gas Company received its first natural gas in October 1956. After one year of natural gas, we have added more load than we had budgeted. Our revenues are in excess of those budgeted. We have found a most generous acceptance of natural gas as a fuel in the Pacific Northwest.

Highest peak sendout for any single day during the manufactured gas period of the company was less than 20,000,000 cu ft (equivalent) of natural gas. We are expecting to have sendouts exceeding 100,000,000 cu ft a day before this winter is over. By December 31, 1957, we showed a net gain of over 8000 meters for 1957.

Dealer cooperation in sales has exceeded our fondest anticipation. Because of long years of patient planning for the introduction of natural gas into our system, we have not experienced any major difficulties since natural gas has arrived.

We have built a good solid foundation for a substantial natural gas growth in the future, and I feel that our ability to add new business on our system is only limited by our ability to borrow capital money to accomplish it. Our 1958 budget is a strong and vigorous one, and we are confident that we will meet it.

Industrial Growth Spurs Oklahoma Natural's Expansion Plans

H. A. Eddins
President
Oklahoma Natural Gas Company
Tulsa, Oklahoma

Oklahoma Natural Gas Company looks forward to substantial growth and expansion in 1958 and for the next five years.

Oklahoma's economy has long been based on agriculture and the oil industry. The state's largest single industry is still the booming oil industry. However, spurred on by shifts in population and markets and in some cases by military necessity, other industries have been seeking inland locations and Oklahoma now has plants operated by such well-known industrial names as Deere & Company, Johns-Manville, Corning Glass, Pittsburgh Plate Glass, American Airlines, Douglas Aircraft, Fairchild Aviation, Container Corporation of America, and Goodrich Rubber.

As of June 1957, 92,000 Oklahomans were employed in manufacturing establishments — a gain of 100 percent since 1940.

Our enthusiasm for the future has been heightened by a report which points out Oklahoma's potential for future industrial development due to its natural resources. The findings of this report are borne out by the fact that the following national manufacturers have decided to locate plants in Oklahoma: Callery Chemical, Tantalum Defense Corporation, and Western Electric. American Airlines is building a large addition to its present Tulsa plant.

All of this activity points to an increasing industrial load for gas, and new plants and plant expansion means more people, more homes, growing communities and increasing residential and commercial loads.

We are anticipating a great increase in our gas air conditioning load. In 1957 we added about 4000 tons of large air conditioning jobs and a healthy volume of domestic installations. The accelerated and highly significant air conditioning research being done by AGA in conjunction with utilities and manufacturers is already showing results and holds great promise for those of us who are increasing the tempo of our activities in anticipation of a greatly increased air conditioning load that will help fill our summer valley.

During the next five years, we plan to spend $50,000,000 for additions to our plant facilities. This includes a normal growth of 50,000 new customers, plus a further increase that will reflect the expansion we anticipate in our industrial economy.

Selling — And More Selling — Needed If Competitive Position To Be Held

Marvin A. Chandler
President
Northern Illinois Gas Company
Aurora, Illinois

Even though many of the general economic forecasts for 1958 that I have read are completely lacking in optimism, if not positively gloomy, I do not feel that way on the prospects for the gas industry for this year. The recent joint forecast by the U.S. Departments of Commerce and Labor that residential construction in 1958 will be 6 percent above 1957 is particularly encouraging for the gas industry.

Apparently, my optimism as related to the gas industry is shared by others, as evidenced by the number of applications pending before the Federal Power Commission for new pipelines and expansion projects of existing pipelines, to which can be added a number of projects recently announced but not yet placed on the commission docket.

In the Northern Illinois Gas Company picture, additional gas supplies and matching storage and peak shaving facilities to meet the pent-up demand of our customers are still our major problems. Until we have accomplished much more along these lines, our opportunity for increased earnings is quite limited. As far as general business in our territory is concerned, the great diversification of industry should protect us against severe shock from any possible recession in

the less fortunate industries, and give us full opportunity to share in the growth of the many that will enjoy increases in their 1958 operations.

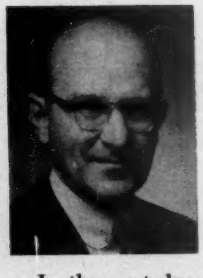
We are confident that new home building in our territory will continue at a high level even though it probably will not equal the peak established in 1956. The most recent figures on permits for new homes in northern Illinois seem to confirm this optimism.

As far as Northern Illinois Gas is concerned, I am convinced that we must maintain our residential kitchen load as a basis for our entire operations. A recent comprehensive national survey of new homes showed that we are not maintaining our position in that market, and the indications were strong that the younger people are being lured by something which to them appears to be more modern. This is in the face of the fact that gas ranges, point by point, can be proved to be more modern, more controllable, and more satisfactory in all operations, and more economical to buy, install, and use than electric.

For this there can be only one answer — selling and more selling.

Further, to maintain the superiority of gas, we must set our sights high on appliance improvement through research and prompt translation of ideas from the laboratory to the production line. The expenditures to pursue this research, and to sell and promote the products with vigor and imagination, will, I believe, be higher than those to which we have been accustomed. Not the least of our jobs will be to solve the related regulatory and public relations problems so they will not deter us from the job that has to be done.

Vigorous Growth To Continue For Philadelphia Gas Works



Charles G. Simpson
General Manager
Philadelphia Gas Works Division
The United Gas Improvement Company
Philadelphia, Pennsylvania

In the past decade, the delivery capacity of the Philadelphia Gas Works has increased 3½ times from 135,000,000 cu ft in 1947 to its present 525,000,000 cu ft per day. We feel pride in this growth, but our primary concern is with the continued increase in the years that lie ahead of us.

We expect our capacity to mount to 625,000,000 cu ft by 1962. To fulfill this expectation, we anticipate capital expenditures of $50,000,000 over the next five years to be financed through Gas Works operation at no increase in gas rates.

Our anticipated appliance sales clearly mirror the ever-broadening desire of the American people for higher standards of living. In 1958 we expect to add 13,500 house heaters to the 180,000 now in use, making gas the No. 1 fuel for home heating in Philadelphia. In addition, sales by Philadelphia plumbers and retailers will include 20,000 gas ranges, 40,000 gas water heaters and 8000 gas clothes dryers. In all, Philadelphians will spend approximately $19,000,000 in buying gas appliances.

Our sales of gas to industrial customers increased by two billion cubic feet this year over 1956 to a total of 13-billion, and we anticipate an even greater increase for 1958. This is due to the competitive price of gas and the increasing interest of industry in clean fuels and the avoidance of air pollution.

To meet the ever increasing demand for gas and give the Philadelphia Gas Works and its customers additional security, a dual pipeline crossing has been laid under the bed of the Delaware River, capable of carrying each day an additional 50,000,000 cu ft of natural gas to the Philadelphia Gas Works. We have contracted for the delivery this winter of 184,000,000 cu ft of natural gas daily. We expect our needs for the winter of 1958-59 to mount to nearly 200,000,000 cu ft of natural gas daily.

Our industry is expanding. The Philadelphia Gas Works is keeping pace.

Underground Storage, Planned Expansion Pace Growth for Laclede

H. Reid Derrick
President
Laclede Gas Company
St. Louis, Missouri

During 1958 Laclede is looking forward to more of the kind of growth that has doubled our plant investment since 1949 and more than doubled our sales in therms since 1950.

We are anticipating this continued growth with a program of continued plant expansion, including carefully projected and pre-engineered main extensions and sound financing.

St. Louis and St. Louis County is a large, rapidly growing area with a sizable unsatisfied demand for gas. For the most part, this is because of the attractiveness of gas for residential space heating, but it is also due to growing requirements of industry and commerce, and for other domestic use.

Based on a design temperature of zero degrees mean, we expect to be prepared to send out 500,000,000 cu ft of gas on the peak day.

During the fiscal year 1957, Laclede spent about $12,000,000 for construction, one-eighth of its total previous plant investment. It is anticipated that construction will continue at about this rate for the next four or five years.

To provide for these cash needs, $7 to $8-million must be financed annually in the capital markets. Recently the company entered into a two-year, $17,000,000 bank loan agreement, under which it may borrow its requirements at a prime rate as needed and avoid the expense of frequent, smaller issues of securities.

One project of which Laclede is particularly proud is our steadily growing underground storage reservoir. Conceived in 1952, this project became operational with the first injection of gas in December 1955. Currently, there is about five-billion cubic feet of gas in storage, including cushion gas. We anticipate that in a few years storage will provide enough additional gas to supply the seasonal demand occasioned by an enormous new house heating load.

To interest technical and professional personnel in positions with Laclede, the company during the past few months has initiated a more aggressive program at colleges and universities throughout the nation. Laclede management feels

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that the most vital part of this or any company is the executive and supervisory force, and is making a strong effort to secure the most capable young men and women available to fill these positions.

In our engineering department, the specific problem of where and how much to extend our mains has been tackled with the aid of electronics. The department, one of the first in the country to own and operate a McElroy analyzer, recently concluded a detailed study of present and projected main capabilities to be used in future construction.

Surveying the work accomplished in the year just past, and that which is to be done during the year ahead, I am pleased to say that our prospect is a bright one. Whatever our problems may be, they will be met intelligently, and dealt with decisively.

PG&E Planning For Record Expansion To Meet Increasing Population Growth

Norman R. Sutherland
President and General Manager
Pacific Gas and Electric Company
San Francisco, California

California's population, now growing at the rate of a half-million per year, automatically generates business in many fields, and most certainly the transmission and distribution of natural gas.

The state's economic condition during the closing six months of 1957 was on a plateau of sufficient height that, with any strengthening of a few soft spots, a favorable business climate should exist throughout the year ahead.

We anticipate the sale of about 245,000 gas appliances in our territory in the coming year and we expect the personal income of the average citizen in northern and central California to rise about four percent, slightly above the expected national average.

In preparation for the expansion expected — including an estimated 53,000 new single-family and 6500 new multi-family dwelling units in our area — we are completing the paralleling of our 502-mile, 34-in. main from Topock to the San Francisco Bay area. The looping will permit us to import more than a billion cubic feet daily from the El Paso Natural Gas Company.

We also will be proceeding with plans to start our 1300-mile, 36-in. main from Alberta, Canada, to California. And, within the state, we will complete a 12-in. main extending 165 miles from the northern Sacramento Valley across the Coast Range to Humboldt County.

We are obtaining our share of trained engineers and other professional people through programs generally followed by industry, thus keeping abreast of our expansion plans.

In the field of technological development, we see the need for further improvements in tools for street work and in small mobile trenchers for distribution and service installations.

Gas Industry Must Prepare To Take Leading Part In Nation's Economic Growth

J. Theodore Wolfe
President
Baltimore Gas & Electric Company
Baltimore, Maryland

Although slowed somewhat by unusually mild temperatures during the heating months this past year and by a temporary decrease in residential building activity, gas sales in the Baltimore area are continuing in the pattern of substantial growth begun when we introduced natural gas in 1950.

Our plans for expansion of facilities to serve both new customers and increasing needs of existing customers contemplate annual expenditures during the next five years averaging well in excess of the $6,900,000 we have averaged during the past five years. This, of course, is based on the confident expectation that our gas load will continue to increase at a healthy pace.

I believe, also, that the next few years offer the gas industry a wonderful opportunity to prepare to take a leading part in the large expansion of our national economy generally anticipated in the early sixties. Through the combined efforts of gas appliance manufacturers, gas distribution utilities, and natural gas pipeline companies, gas-using equipment has been modernized and made appealing to our customers. Further close attention to this program of research, development and promotion, particularly in the promising field of year-around air conditioning, will maintain the industry's growth and improve its competitive position.

Advantages of Gas As Fuel Keep Demand Ahead of Supply in Milwaukee

S. Lloyd Nemeyer
President
Milwaukee Gas Light Company
Milwaukee, Wisconsin

Public acceptance of natural gas during the few years it has been available to the people of this area more than justifies our feeling of optimism as we at Milwaukee Gas Light Company look ahead to 1958 and the years beyond.

The fact that demand, particularly in the space heating field, has many times outpaced supply, is a clear indication that people who have an opportunity to use natural gas prefer it for their many heating needs. This becomes increasingly evident when we realize that more and more people are using this premium fuel despite the comparatively recent introduction of natural gas to this market.

We at Milwaukee Gas Light see numerous opportunities

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ahead, despite a noticeable softening of the national economy. Let me list some of them for you.

Although building starts have not kept pace with previous years, we have met this challenge by an aggressive main extension policy that has made possible the servicing of 95 percent of new homes with gas. In addition, we expect more on-main construction during the coming year, plus an increase in institutional heating such as churches and schools.

Replacement of heating systems with natural gas units will take place because, despite a slip in the economy, converting to gas will be the practical and economical thing to do. Industrial sales appear to be holding up well and will continue to provide us new markets.

One of our best opportunities for increased sales lies in the home heating field where we have some 35 percent saturation. We will increase this saturation through vigorous sales promotion. At present we are picking up about 500 new customers each week.

Dryer sales in this area indicate that people who have had an opportunity to compare gas with electricity have chosen gas overwhelmingly.

To further illustrate my point let me offer a few figures. Our sendout in 1949, the last year of manufactured gas, was 71,604,000 therms, with a peak day of 302,152 therms. In 1956, the total sendout was 291,785,000 therms with a peak day of 1,061,000. This year will far surpass all others.

Although the gas industry does not yet have the diversified air conditioning equipment that could place us in a more competitive position, we plan to utilize this off-peak use of gas to its fullest extent to fill summer valleys.

Such technological developments as thermostatic top burner controls and new, modern gas incinerators have enhanced the acceptability of gas throughout the nation.

Locally, we have concentrated on a program of pressure elevation that has eliminated peaks and valleys in residential pressure and increased the main carrying capacity. Of course, it also has brought a decrease in complaints.

Improved Service, Improved Appliances, Aggressive Selling Will Insure Future

Dale B. Otto
President
New Jersey Natural Gas Company
Asbury Park, New Jersey

The New Jersey Natural Gas Company in the past year has experienced new highs in the number of customers served, gross revenue and net income. There has been some softening of the general economy of our service area; however, increased efforts on the part of an alert and aggressive sales staff have enabled the company to move forward.

We anticipate that the coming year will be at least as good as the one just past. In the new home construction field we have increased our share of the market from 87 percent all gas homes to 90 percent of total starts. Builder forecasts for the coming year indicate there will be as many housing units built in 1958 as there were in 1956.

We continue to actively support the AGA and PAR research and promotion programs because we believe we are the recipients of the benefits of these programs.

It is a credit to the industry that a major utility has taken the initiative in the manufacture and promotion of a year-around air conditioner. Certainly the road ahead in the promotion of the gas load is an uncertain one. However, the responsibility of the gas industry to adequately provide its share of the energy requirements of the nation is clear. Men of proved ability are available in the industry as leaders. It remains only that we support this leadership at the distribution level.

We at New Jersey Natural recognize the competitive challenge that lies ahead, but are optimistic that we can meet the challenge and satisfactorily provide the type of service that will retain our existing customers and gain new ones for us.

Higher standards of service, improved appliances, and imaginative and aggressive sales promotion can provide the vehicle for another great year for the gas industry.

Gas Industry Only Beginning To Realize Its Greatest Period of Service

Donald B. Beecher
President
Equitable Gas Company
Pittsburgh, Pennsylvania

The 1958 outlook for the gas industry and our company gives me a feeling of confidence and continued faith in the future.

As the country's fifth largest industry, we are only beginning to realize our greatest period of service. Natural gas is now delivered to practically every state in the Union; reserves are at an all-time high and continue to grow each year; demands for natural gas are increasing in industry, in commerce and in the home. The next five years should bring the steadiest level of earnings, sales and employment ever known to our industry.

New developments, such as hydrocarbon extraction, may be another possible source of revenue for our expanding industrial growth.

The national picture is excellent. We, at Equitable Gas Company, plan to be an ever-increasing part of this national scene. Since we operate in the most dynamic city in the nation, our growth is dovetailed with our city's renaissance.

In 1957, we completed our new *Delmont* and *Tepe* transmission lines, two important links in our service system, and our Kentucky hydrocarbon plant began operation.

These developments, along with increased sales, public relations, advertising, and employee educational activities insure for Equitable an ever-increasing share of the fuel demands in our service area.

Our customers, shareholders, and employees will profit from the increased sales and service.

OUTLOOK FOR 1958

GAMA Members See $5-Billion Outlay In 1958 For New Appliances

Clifford V. Coons
President, Rheem Manufacturing Company and *President,* Gas Appliance Manufacturers Association

The residential gas appliance and equipment industry estimates that at least 15.6 percent of the $32,000,000,000 outlay expected in 1958 for new home construction and modernization will be spent on kitchen, laundry, and heating equipment, with gas-operated types in greater demand than at any time in the past.

A better than seasonal pick-up in the gas heating business since last summer, continuation of heavy volume in gas water heaters, and a sharp final-quarter rise in sales of gas built-in ranges are among the reasons why the industry's outlook for the new year is extremely bright.

Official forecasts of 1,100,000 housing starts valued at $17-billion and home improvement projects totaling $15-billion are another basis for gas equipment industry enthusiasm.

It appears likely that housing starts will be better distributed in 1958 than during this year when Los Angeles alone accounted for every 12th start. This will mean better distribution of business among regional equipment producers.

The average new home, according to recent past performances, will retail for about $15,500 and will require about $1850 worth of cooking, heating, laundering, and related equipment. In cases of home improvement, 20 percent of the average budget will go for similar equipment.

The combination of the new-homes and modernization markets therefore will involve an equipment expenditure by consumers of more than $5 billion, or 15.6 percent, of the $32-billion earmarked for shelter production and improvement in 1958.

Recent figures show how the gas industry ties into the present and future housing picture. Seven out of 10 new homes now are being equipped with gas central heating furnaces or boilers. Gas water heaters are outselling other types by better than three to one, while sales of gas built-in ranges, now in demand for both new homes and replacement projects, are up nearly 20 percent over last year's total and are expected to go much higher in 1958.

Even if only 10 percent of the nation's existing homes come in for some improvement next year — and the outlook is for a much larger number, according to building and loan and other lending institutions — the effect on appliance sales is likely to be positive.

The tendency to favor gas equipment is already discernible in the step-up of gas conversion burner, clothes dryer, direct heating equipment, gas range, and water heater sales during the final quarter of 1957, as well as the all-year pace of furnace and boiler sales.

Demand for gas dryers indicates that home improvers want to complete laundry automation that began with earlier installation of washing machines. Automatic gas water heaters figure in modernization projects because of growing families, the need for increased hot water-producing capacity, and the fact that new and improved components of the modern gas heater have added to its efficiency without increasing its bulk.

As to gas ranges, either free-standing or built-in, dealers report demand arising from a swing to the new time and automatic heat controls for both the oven and range top burners and a realization, at long last, of how much easier it is to run a kitchen equipped with efficient cooking automation.

Students of the modernization market also see up-dated refrigeration and whole-house air conditioning as in more common demand in 1958. Both services are now available in gas-operated equipment, and the new year is expected to see more gas equipment companies engaged in this phase of the industry.

Continuing spectacular expansion of the natural gas pipeline system is a strong indication of the industry's belief that our expanding population will demand gas and gas burning appliances and equipment in increasing volume. And the entire industry — producers, pipeliners, utility companies, and manufacturers of gas appliances and equipment are united in support of programs that will not merely maintain the industry's leadership, but will expand its service to the nation's homes and stimulate the sale of gas and gas equipment.

Diligent Work Needed To Keep Gas Fastest Growing Big Industry In America

R. W. Ramsdell
President
The East Ohio Gas Company
Cleveland, Ohio

There is every indication that our industry will continue the dynamic surge of the past decade on into the future; that this progress will become a well-known and respected characteristic of our business.

We will have problems — rates, legislation and supply — in 1958 and the years to come. But, I feel certain we are big enough to overcome them. One reason for my optimism is the development of honest cooperation between the three segments of the industry.

Another is that we are now beginning to function as the big, important industry which we are. Our sponsorship of the nationally-recognized *Playhouse 90* television series manifests this.

Ours is an industry that is bound to grow as more areas are brought service, more customers are added, and the use of gas increases.

In 1958, East Ohio will add approximately 23,600 customers to increase our total to about 790,000 in approximately 150 northeastern Ohio communities. This figure could be a very conservative estimate.

Last November we acquired the Lake Shore Gas Company, extending our service area some 75 miles eastward to

the Pennsylvania state line. Although a small company, Lake Shore, in the past few years, had been very aggressive in promoting natural gas. With the admirable beachhead they made, we feel that in the next few years this area, which includes the important St. Lawrence Seaway ports of Conneaut and Ashtabula, will be an outstanding market for our product.

Our confidence in the area we serve, in the future of natural gas is best illustrated by what we are doing to meet the anticipated demand for gas. In late December we sent gas flowing through our thirteenth large-diameter transmission line. The new 110-mile, $13-million line, composed of 24- and 30-in. pipe, will not only increase our supply, but will give us more flexibility in meeting the peak demands of many new customers.

In a similar vein, we constantly are increasing and improving our underground storage facilities. In mid-November, 1956 we had 54-billion cu ft of gas stored underground. In 1957, the figure rose to 64-billion. By November, 1958 we will have 72-billion cu ft in our three storage pools.

Our confidence has strong foundation. During 1957 gas house heating saturation in our service area increased three percent to a total of 87 percent. By the end of this year we are certain that 89 percent of our customers will be using natural gas to heat their homes.

Other uses of gas in the home have a promising future. Close to 18 percent of our customers now have gas incinerators in use. We expect this figure to increase to at least 20 percent by December 1958.

Automatic clothes dryers are challenging seriously the supremacy our competitors once had. Our surveys indicate that 14 percent of our customers had a gas dryer in operation at the end of 1957. By December 1958, this figure will increase to 17 percent.

Of more significance is the fact that gas dryers are outselling electric dryers in the area we serve. In 1951 the ratio of automatic dryers in use was 73 to 27 in favor of electric. Today, of every 100 automatic dryers, 47 are gas.

The sudden surge of electric ranges some years back has practically been halted. Today, 82 percent of our customers use gas for cooking in the home. In commercial dining establishments, 99 percent of the meals are cooked with gas.

Our sales department recently concluded a seven-week range promotion in which our dealers sold 4841 ranges. The goal was 4200. The really remarkable thing was that 73 percent of the ranges sold were equipped with a thermostatically controlled top burner. We felt that this was not only a strong testimonial to gas ranges, but points out that gas appliance manufacturers have met the challenge of the competition with such an automatic feature.

Similarly, recent developments in the manufacturing and marketing of gas refrigerators and home air conditioning units should place us in a much stronger competitive position all around.

This is all on the credit side. Our biggest debit could be complacency. We must strive continuously to promote our industry and our products. Our competition is strong.

We must do everything possible to obtain the best personnel. Like most industries, there is a greater demand than supply of trained engineers and technicians. We can get our share only by aggressive recruiting practices.

We must work diligently to improve not only appliances to give them even more of a competitive edge, but to better our facilities to keep our costs down.

In the field of technology, some method of installing pipe so that it would be completely corrosion-proof is necessary. Coating and cathodic protection have done much in this area, but there is still room for improvement.

Such development is necessary because we must maintain ourselves as industrial leaders, anxious to provide even better service to our customers. We must always remember that natural gas is not our only product. We provide outstanding service, too.

Our industry has an excellent future. The value of natural gas is gaining more and more recognition. Gas appliance manufacturers are meeting and surpassing the innovations of the competition. Our product is an important part of literally thousands of industrial processes. I feel that we honestly can say we are the fastest-growing big industry in America.

Gas Industry's Challenge of Growth Must Be Met By People . . .

F. M. Banks
President and General Manager
Southern California Gas Company
Los Angeles, California

The spectacular growth of the area served by Southern California Gas Company has tremendously increased demands for natural gas. Obtaining the gas supplies to serve these markets continues to be one of the most important activities of the management of the Southern California Gas Company. In August, 1957, this company and its affiliate, Southern Counties Gas Company, completed a major new 30-in. pipeline at a cost of $33.5 million. This new line increased the capacity of our out-of-state gas supply system to more than one billion cubic feet of gas daily — and more is yet to come.

In the past decade a 60 percent increase in the number of customers connected to our lines has been accompanied by an almost 85 percent increase in firm-use requirements. For 1958 we expect to add in excess of 50,000 new meters to our system, with a concurrent 11 billion cu ft increase in firm requirements.

To meet this challenge, a never-ending program of expansion is required: More transmission facilities; more underground storage facilities; more gas distributing facilities.

Our company is aggressively promoting the use of gas air conditioning in our service area with a carefully planned sales campaign. As part of the implementation of this promotion, our general service rate schedules allow a 25 percent discount from May to October on the first 25 Mcf of use for 3-ton direct fired air conditioners and an additional 10 Mcf for 5-ton units.

OUTLOOK FOR 1958

It is gratifying to note the many technological advances being made in the gas industry. High on the list are operational and design innovations that promise to make 1958 an outstanding gas appliance and equipment sales year. Also promising for the future of gas utilization is information that a fuel cell can be developed that will use natural gas in large-scale operations.

Despite continuous technological advances, we feel the gas industry's challenge of growth must be met by people. We should continue our efforts to attract and hold capable graduates in technical and professional fields. I am sure the AGA brochure recently distributed to colleges and universities will help in 1958. In addition, our recruitment and development programs, aimed at meeting present needs, but more importantly the demand for future leadership, will continue.

Selling Advantages of Gas As Fuel Still Our Most Important Job

L. T. Potter
President
Lone Star Gas Company
Dallas, Texas

As Lone Star Gas Company ends a year in which favorable results were achieved in operations, we look with optimism to 1958. Since its organization almost 50 years ago, Lone Star has experienced a steady and vigorous growth, climaxed by the past decade during which its customer count has almost doubled and its Property, Plant and Equipment Account has more than doubled. Located in the heart of the Southwest, one of the fastest developing areas of the nation, we expect our rapid growth to continue at its current rate of from 25,000 to 35,000 customers annually.

Public acceptance of gas as a fuel for home and industry has never been higher, and from all indications this acceptance will increase during the years ahead. This does not mean, however, that the industry can slow down on the excellent selling job that has been started. On both the national and local levels, this campaign must be intensified, for selling the advantages of gas as a fuel to the public is still one of our most important jobs. Basic to this task are the continuing coordinated efforts of the research laboratories and appliance manufacturers to make gas appliances the most modern available anywhere.

In an area where more than 99 percent of our customers use gas for heating, air conditioning offers a major challenge to our company, on both the residential and industrial levels. In the last five years some 35,000 tons of refrigeration capacity for air conditioning have been added on the Lone Star system. The outlook for the future is equally as bright, as decreasing costs make the gas air conditioning system even more attractive to the residential market. The entire industry has before it an enormous opportunity in the air conditioning field and it is encouraging to see the aggressive steps being taken in the industry toward taking advantage of this opportunity. The gas industry will be heard from increasingly in the year-around air conditioning business.

Gas Industry Sets Record $4-Billion In Revenues; Customers Total Over 31,000,000

Robert W. Otto
Chairman of the Board
Laclede Gas Company, St. Louis
and
President, American Gas Association

The gas utility and pipeline industry passed the $4-billion mark in revenues for the first time and boosted its total number of customers to a year-end record of 31,000,000.

The nation's gas industry is confidently building for the future because millions of Americans are depending on gas for present and future needs in comfort, convenience, economy, and dependability.

This confidence is reflected in current construction expenditures of $2 billion a year, 97 percent of which is earmarked for natural gas facilities. Expenditures will total $8.7 billion for a four-year period through 1960, compared with $5.3 billion spent in the previous four-year period (1953-56) and $4.7 billion in 1949-52.

The average number of utility customers during 1957 (not counting some 9,000,000 consumers who use "bottled gas" because they live beyond the present reaches of utility lines) was 30,385,700, an increase of 2.9 percent over 1956. The year-end total was 30.9 million customers.

Utility customers receiving natural gas averaged 27,000,000, seven percent more than in 1956. A drop of 21.2 percent to an average of 3,200,000 was reported in manufactured and mixed gas customers, as former users of these types of gas continued to convert to natural gas.

Total industry sales increased 2.0 percent to a record 74.36 billion therms, with natural gas sales up 3.2 percent to 72.02 billion therms.

Revenues climbed to $4.014 billion, an advance of 4.2 percent over last year's revenues of $3.853 billion. Natural gas revenues climbed 7.4 percent to $3.676 billion.

Proved recoverable natural gas reserves were 237.8 trillion cu ft at the start of 1957, a net increase of 14.1 trillion cu ft after record production of 10.9 trillion cu ft in 1956.

Underground storage operations continue to grow to an estimated current capital investment of $497,000,000. At the outset of 1957, there were 188 underground storage pools and 7432 wells in operation in 20 states, with an ultimate capacity of 3.4 trillion cu ft.

Pipelines were extended approximately 21,000 miles in 1957 to a total of 545,700 miles. More than a third of this network has been constructed in the past 10 years.

Conveyors—overhead and belt types—dominate view of interior of Lone Star's ultra-modern meter shop.

Modern materials handling equipment, functional layout, specialized tools are combined to give Lone Star Gas a . . .

'Non-Stop' Meter Shop

A. B. McCurdy,
Division Industrial Engineer
Dallas Division of Distribution
Lone Star Gas Company, Dallas, Texas

EFFECTIVELY PLACED, modern time-saving devices have given Lone Star Gas Company a virtual "non-stop" meter shop for its Dallas Division of Distribution. Recently placed in operation, the new shop is located in Lone Star's new $1.3 million central service center in Dallas.

Total annual capacity of the shop is conservatively estimated at 78,000 meters. In addition, the shop has capacity to repair approximately 15,000 domestic regulators per year. Meters are handled on a semi-production line basis which allows flexibility for increased volume.

Lone Star engineers did the basic and detailed planning and the mechanical engineering; selected, and contracted for the purchase of equipment, and supervised installation of all components. Preliminary planning started in 1952.

During the 360-day construction period of the new service center, shop equipment was ordered with delivery dates specified to coordinate with the completion date of the entire building. This made it possible to begin installation of the equipment just four days after the structure was accepted. Installation required 80 days.

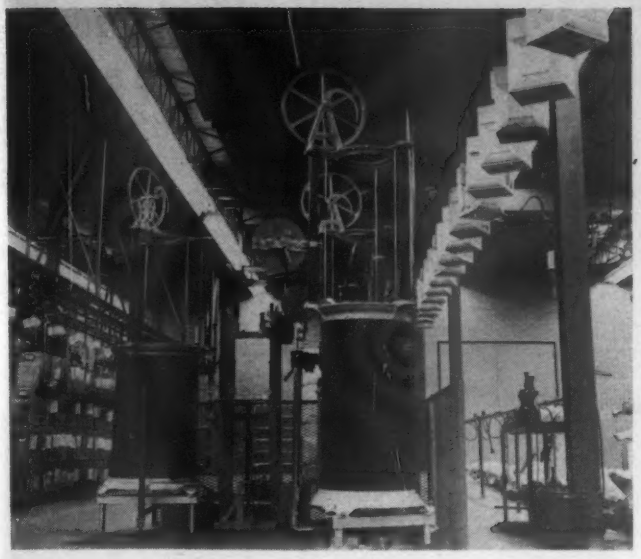
Besides the labor-savings realized, other benefits of the new shop include improved general appearance, increased employee safety, better employee morale, and convenience resulting from the new shop layout.

Too, appearance and longer-lasting quality of paint on finished meters has been greatly improved by a completely new finishing system, to be discussed later.

Unsightly furnace vents and utility lines at the work benches have been eliminated by constructing a relatively inexpensive sub-basement—with a gravel floor — beneath the meter shop proper. Seven feet in height, this sub-basement area houses all utility lines for the shop plus exhaust ducts from soldering furnaces. All lines are stubbed through the floor at the required locations. The sub-basement space makes maintenance easier and future changes will be relatively simple.

A feature of the work benches is a swinging, built-on stool that is adjustable in height. It is pivoted from one of the bench supports, making it possible to swing the stool under the bench when not needed. Compressed air for power tools and dusting guns is provided from spring-loaded hose reels mounted directly above the bench. All benches are equipped with 110-v base plugs for portable power tools.

Soldering furnaces, provided at 23 of the work benches, are covered with



After overnight storage, meters are given in-test (center) and then sent to continuous-type chemical paint stripper.

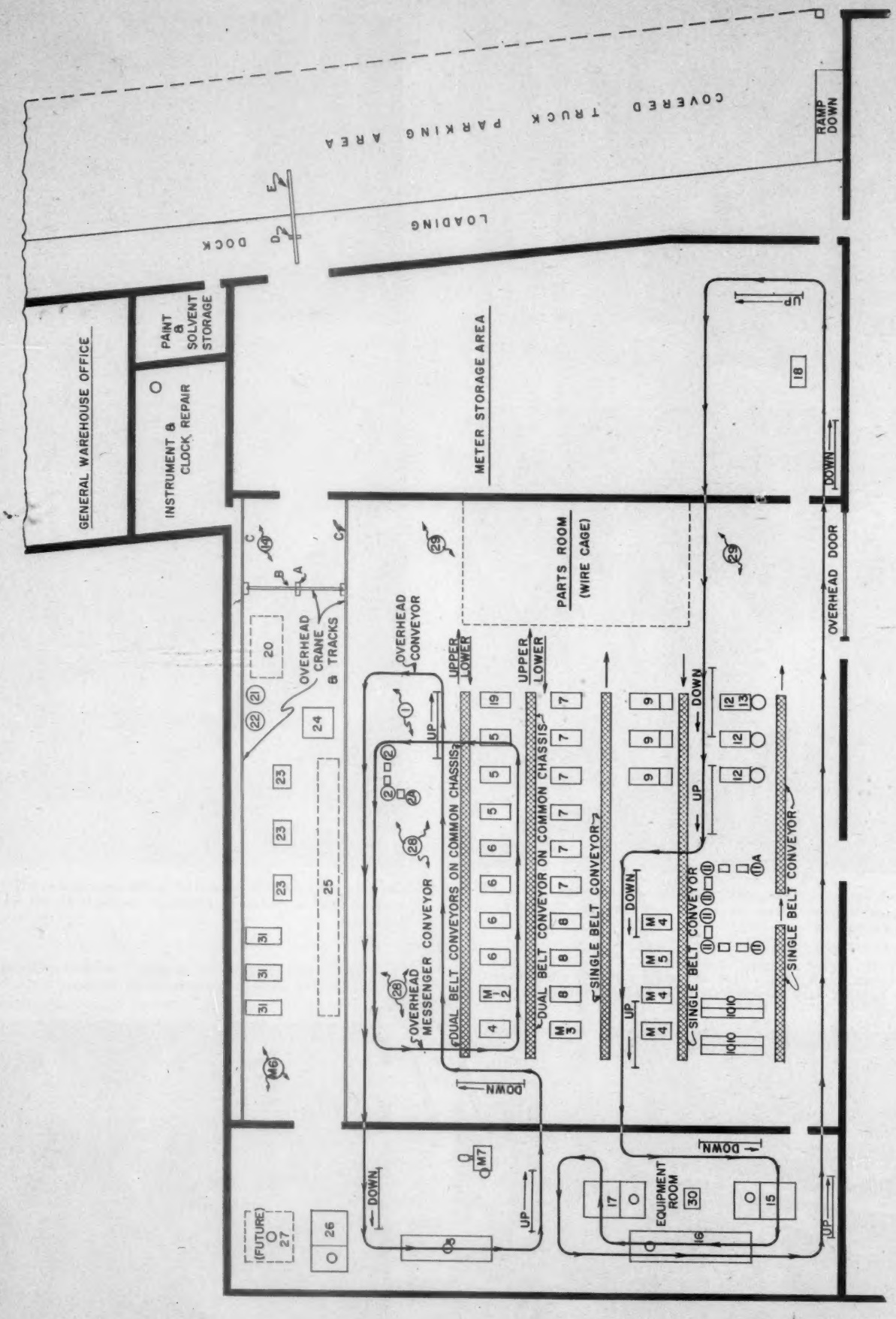
Overhead conveyor carries meters to paint stripper, located in separate room from air conditioned meter shop.

Meters returning from paint stripping are matched with cards on message conveyor, then placed on belt conveyor, routed for work to be done.

Card for each meter is sequenced on message conveyor (top center) in same order as meters on overhead conveyor. At left are dual belt conveyors.

At station No. 5, tops, valves, and crank assembly are removed. All work benches have swinging stool, air-motor-driven tools, soldering furnace.

Work bench arrangement with conveyor belt system; cleaning, repair, and checking of meters is progressive by stations.


COVERED TRUCK PARKING AREA
RAMP DOWN
LOADING DOCK
GENERAL WAREHOUSE OFFICE
PAINT & SOLVENT STORAGE
INSTRUMENT & CLOCK REPAIR
METER STORAGE AREA
PARTS ROOM (WIRE CAGE)
OVERHEAD DOOR
OVERHEAD CRANE & TRACKS
OVERHEAD CONVEYOR
OVERHEAD MESSENGER CONVEYOR
DUAL BELT CONVEYORS ON COMMON CHASSIS
DUAL BELT CONVEYOR ON COMMON CHASSIS
SINGLE BELT CONVEYOR
SINGLE BELT CONVEYOR
SINGLE BELT CONVEYOR
EQUIPMENT ROOM
(FUTURE)
UPPER
LOWER
UP
DOWN

Flow Diagram of New Meter Shop Illustrates its Functional Design

On opposite page is flow diagram for Lone Star's new meter shop in Dallas. Flow of meters through the shop begins at station No. 1, where meters are received and stored overnight to reach temperature equilibrium. From that point they progress orderly through the shop, as outlined below in the *Sequence of Station Functions*. Note that the shop actually has two areas — a large meter repair area (in top bay) and the balance of shop repair area is devoted to small meters.

STATION FUNCTIONS

Station Number	Iron Meter Repairs	Tin Meter Repairs	New Meters
1	Overnight Storage-Incoming Small Meters	Overnight Storage-Incoming Small Meters	Overnight Storage-Small Meters
2	In-Test Provers– 2 cu ft	In-Test Provers–2 cu ft	
2A	In-Test Provers–5 cu ft	In-Test Provers–5 cu ft	
3	Continuous Type Paint Stripper Small Meters	Continuous Type Paint Stripper Small Meters	
4	Work Bench-Inspector for Routing	Work Bench-Inspector for Routing	
5	Work Bench for following: (1) Remove top (2) Remove valves (3) Remove crank assembly	Work Bench for following: (1) Remove top (2) Remove back plate (3) Remove valves	
6	Work Bench for following: (1) Test diaphragms (2) Decide if partial or re-dia, repair (3) Clean inside of meter (4) Grind valve covers and seats	Work Bench for following: (1) Test diaphragms (2) Decide if partial or re-dia, repair (3) Clean inside of meter (4) Grind valve covers and seats	
7	Work Bench for following: (1) Check and replace worn parts (2) Re-assemble (3) Check spacing of flag arms	Work Bench for following: (1) Check and replace worn parts (2) Re-assemble (3) Time valves (4) Space flag arms	
8	Work Bench for following: (1) Key valves and tangents (2) Check and set valve timing (3) Replace top	Work Bench for following: (1) Key valves (2) Replace back plate (3) Pack flag stuffing and crank box	
9	Work Bench and Tank for following: (1) Remove index box and index (2) Repack axle stuffing box (3) Leak test (4) Clean and mount index and box	Work Bench and Tank for following: (1) Remove index and axle (2) Leak test (3) Clean and mount index	
10	Table-Pilot Testing	Table-Pilot Testing	Table-Pilot Testing
11	Final-Test Prover– 2 cu ft	Final-Test Prover– 2 cu ft	Final-Test Prover– 2 cu ft
11A	Final-Test Prover– 5 cu ft	Final-Test Prover– 5 cu ft	Final-Test Prover– 5 cu ft
12		Top In and Test	
13	Work Bench for following: (1) Cap and seal meter (2) Clean outside with solvent (3) Mask dial glass	Work Bench for following: (1) Cap meter (2) Clean outside with solvent (3) Mask dial glass	Work Bench for following: (1) Cap meter (2) Clean outside with solvent (3) Mask dial glass
14	Overnight Storage-Incoming Large Meters		Overnight Storage-Large Meters
15	Paint Booth-Prime Coat	Paint Booth-Prime Coat	
16	Paint Drying Oven	Paint Drying Oven	Paint Drying Oven
17	Paint Booth-Finish Coat	Paint Booth-Finish Coat	Paint Booth-Finish Coat
18	Work Bench for following: (1) Clean dial glass (2) Stencil on data (3) Place in storage	Work Bench for following: (1) Clean dial glass (2) Stencil on data (3) Place in storage	Work Bench for following: (1) Clean dial glass (2) Stencil on data (3) Place in storage
19		Work Bench for following: (1) Straighten tops (2) Wire buff tops (3) Re-tin if necessary	
20	Low Press. Flow Prover Large Meters		Low Press. Flow Prover Large Meters
21	Meter Prover– 20 cu ft Large Meters		Meter Prover– 20 cu ft Large Meters
22	Meter Prover– 10 cu ft Large Meters		Meter Prover– 10 cu ft Large Meters
23	Hydraulic Lift Tables–Large Meters		
24	Leak Test Tank–Large Meters		Leak Test Tank–Large Meters
25	Pilot Test Area–Large Meters		Pilot Test Area–Large Meters
26	Paint Booth-Prime and Finish Coat, Large Meters		Paint Booth-Prime and Finish Coat, Large Meters
27	Paint Stripper-Batch Type Large Meters		
28	Storage Area-Small Meter Backlog	Storage Area-Small Meter Backlog	
29	Misc. Storage Area-Small Meters	Misc. Storage Area-Small Meters	
30	Power Unit–Electrostatic Painting System	Power Unit–Electrostatic Painting System	Power Unit–Electrostatic Painting System
31	Work Bench for following: (1) Complete repairs to 20-B, 25-B, 30-B, and 35-B meters and other similar sizes		

MISCELLANEOUS EQUIPMENT

Station Number	Description and Purpose
M–1	Work Bench—Re-diaphragm Tin Meters
M–2	Work Bench—Re-diaphragm Iron Meters
M–3	Work Bench—Repair all rejects
M–4	Work Bench—Domestic regulator repair station also prepare new regulators for service
M–5	Work Bench—Badging for new meters
M–6	Area for grinders, buffer, drill presses, vise and etc.
M–7	Blower—Exhaust System for Soldering Furnaces
M–8	Selas Gas-Air Mixer for Soldering Furnace Burners
A	Power Hoist for Bridge Crane
B	Transverse Beams—Bridge Crane
C	Longitudinal Beams—Bridge Crane
D	Power Hoist—Mono-rail Crane
E	Beam—Mono-rail Crane

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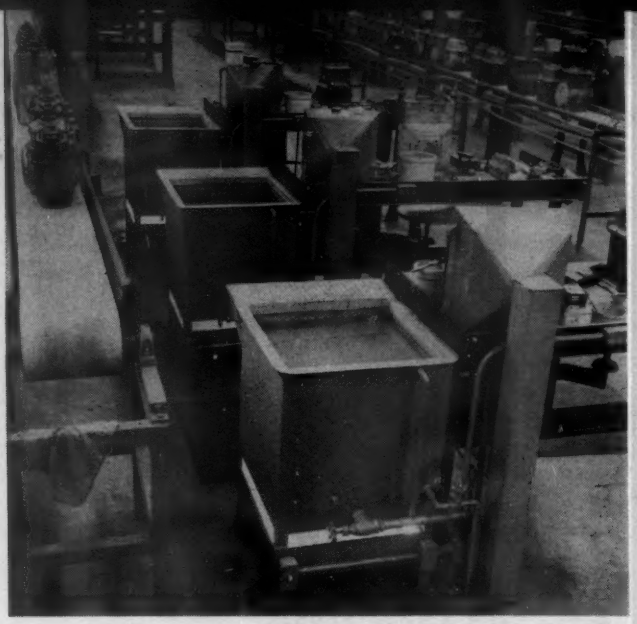
Soldering furnaces at each work bench are equipped with insulated hoods. Vent system is ducted underground, discharged outside. Here, meter shop general foreman Clyde E. Collins demonstrates draft in hood.



Meter casings are tested in these tanks — illuminated from below through a glass bottom. Lone Star men designed and built the units.

insulated hoods that open only at the front. A 4-in. square vent, attached to the hood, stubs through the floor and is connected to the underfloor duct system. A mechanical exhaust system is used to discharge the products of combustion outside.

Shop Is Air Conditioned

Air conditioning and a modern color scheme provide pleasant work surroundings. Major function of the air conditioning is to provide greater accuracy in meter proofs. Temperature is maintained year-around at 72 F.

As the semi-production line system would not adjust itself to a "prover room," the meter shop proper was air conditioned and the provers placed in the most advantageous spot. Cooling is done by two 30-ton air handling units that receive chilled water from a 216-ton absorption-type unit operated on steam from gas-fired boilers that also cool the remainder of the service center.

Gone are the drab colors of yesterday. Interior walls are natural red brick. Work benches are painted dark green, proving equipment is maroon, columns and air conditioning ducts are graphite, belt conveyors and leak test tanks are Georgian blue, and furnace hoods and overhead conveyors are burnt orange.

Ultra-Modern Conveyor System

The conveyor system is one of the new shop's finest features. A combination of overhead trolley-type and floor-mounted belt conveyors transports meters from the in-test proving station to final storage. An added convenience is a light weight overhead-type message conveyor that moves meter cards from the in-test station to a point where the card is attached to the respective meter after the meter has been through the chemical paint stripper on the trolley conveyor.

The new provers are operated with compressed air from the principal 100-psig air supply. Three separate pressure cuts are made with a 30-ft section of pipe between stages. Air at 1½-psig is taken from the last stage and entered into shop-made copper bottles, 11-in. in diameter and 10-ft long.

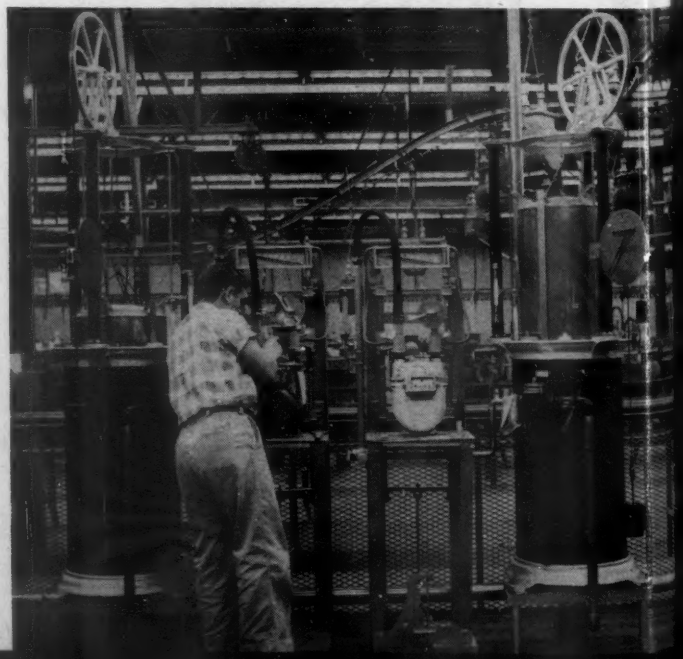
Copper, being an excellent conductor of heat, allows the air to attain equilibrium with room temperature before it enters the provers.

Convenient Parts Room

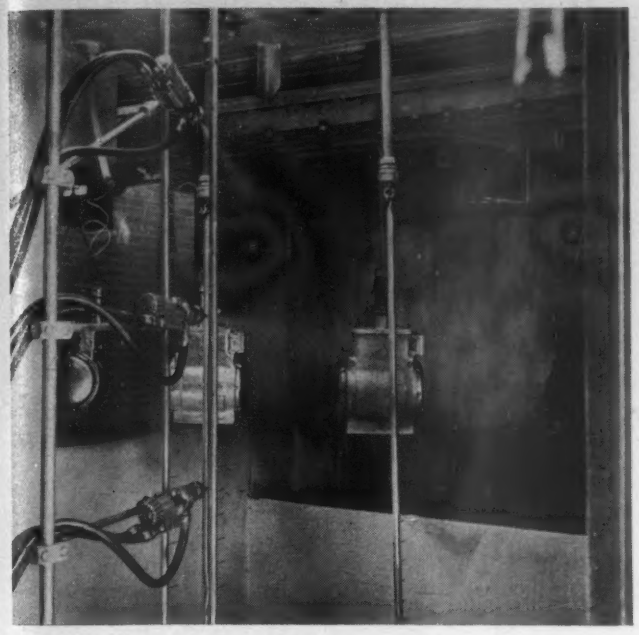
No time is lost in obtaining parts, paint, etc. A wire-enclosed parts room is conveniently located in the repair shop proper. The paint storage room is located next to the meter storage area

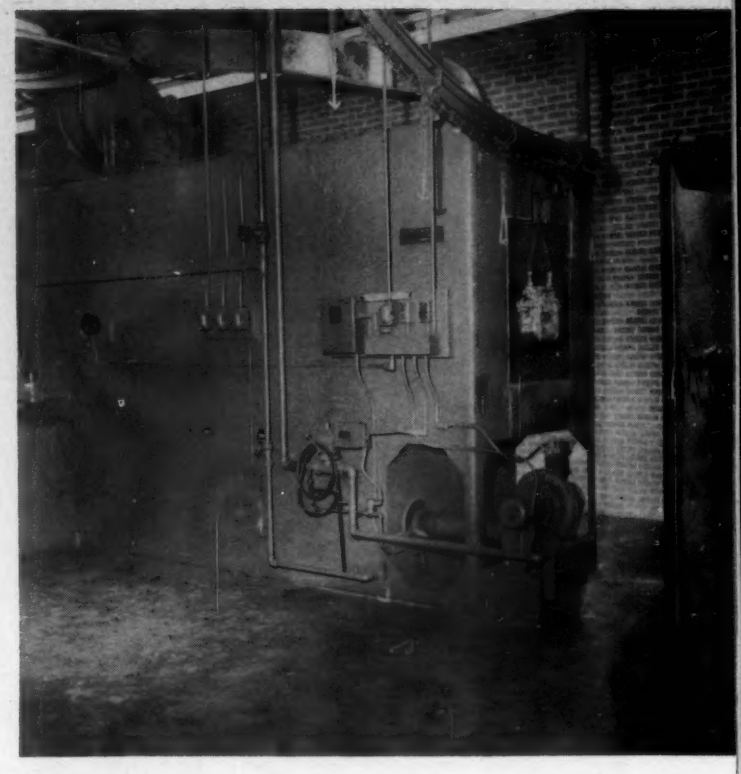
Repaired and/or adjusted meters are pilot-tested at this table. Unit has unique automatic timing device, electronically controlled.

Final test and adjustment is made at this point. Air is supplied to provers from overhead copper tank, where air reaches equilibrium with room temperature, giving more exact test.



After final testing, meters go to paint shop, getting prime coat and final coat from ultra-modern electrostatic painting system.





Gas-fired drying oven allows rapid cycle for meter painting and drying; complete cycle takes only about 30 minutes. ➤

and is completely fireproofed by use of masonry construction, mechanical ventilation, and explosion-proof electrical fixtures.

Adjacent to the paint room is the instrument repair room. This space is acoustically treated so that a clock can be heard to run. Indexes, volume and pressure gages, base pressure indexes, clocks, and other instruments are repaired and stored in this room. Equipment includes the most modern jewelers tools, a laboratory-type paint booth, work benches, and storage shelves.

Meter Casing Leak Tester

Lone Star men designed and constructed four tanks — three small ones for domestic meters and a large one for industrial meters — that are used to check for leaks in the meter casings. Meters to be checked are lowered into the water-filled tanks. Air pressure at 1 psi is applied through the meter's inlet opening when the meter is submerged and the outlet opening is plugged with a rubber stopper.

Each tank has a glass bottom with fluorescent lights below the glass. The light allows the repairman to more readily detect the source of bubbles that denote a leak.

Meters Painted Electrostatically

Greatest time-saving device in the entire shop — and an ultra-modern feature — is the electrostatic painting system.

The system consists of two forced ventilated, water-washed paint booths; a gas-fired, warm air oven; and an electrostatic power unit that rectifies 110-v a-c to d-c and steps up voltage to 104,000-v with a power output of only 2.5 milliamps.

Repaired meters move into the equipment room by trolley conveyor for the prime coat of paint. Then, the meters pass through the oven at 130 F. Only 14 minutes after the prime coat is applied, the finish coat is sprayed on. Finished meters then pass back through another section of the same oven and on to storage.

After painting, meters go to storage area, where they are removed from conveyor system, racked according to type and size, ready for next day use.

Wire caged parts room is conveniently located in repair shop, close to all work benches.

The entire process is automatic and requires no employee in the vicinity except for casual observation.

Each booth has three paint spray guns, mounted vertically. Two parallel vertical grids, spaced four inches apart, are located approximately three inches in front of the guns. Two additional parallel vertical grids, spaced 12 in. apart, are located approximately 10 in. beyond the first grids. The meter is located 14 in. beyond the second grids.

Paint particles are sprayed between the electrostatically charged grids and pick up a positive charge. The meter, having a negative charge (it is grounded), attracts the particles — similar to iron filings being attracted by a magnet.

The paint spray mechanism in each booth is triggered "on" by the meter itself — by means of a mercoid switch — so that in case an empty hook comes by, no painting will be done. Meters are revolved automatically at the rate of 30 rpm while being painted to insure an even coat. Prime coat is applied in eight seconds and the aluminum coat in six seconds.

Large meters are handled separately. Here, order of new meters is being badged prior to testing and painting.

Equipment Room

Although the equipment room, separated from the repair shop by a masonry wall, is not air conditioned, it is adequately ventilated. An air handling unit, located in the basement, supplies a maximum of 26,000 cfm of filtered air in the summer to the equipment room and filtered and heated air in the winter. Heat is supplied by means of a steam coil connected to the same boilers that supply steam to the absorption unit in the summer. The 26,000 cfm of air is required to make up the air exhausted by the paint booths, oven, and paint stripping units.

The air handling unit is equipped with a 2-speed motor and suitable electrical interlocks that permit slow speed fan operation when only a portion of the exhaust equipment is in operation.

Electrical interlocks are also provided on all equipment located in this room so that no stripping, drying, or painting may be done unless the exhaust system is functioning properly.

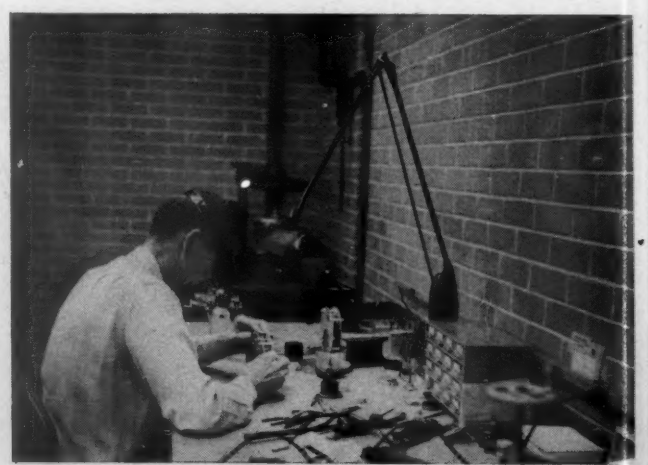
Pilot Test Station

Automatic timing devices have been installed at the pilot test station for meters. The station consists of two benches divided into two sections per bench. One timer per section is capable of handling 10 domestic meters simultaneously. A punch of a button starts the timing device, energizes a green signal lamp, and opens a solenoid valve, allowing air to pass through the meter at a rate of ¼-cu ft per hour at an inlet pressure of ½-in. wc.

At the end of a 45-minute period, the timing device automatically closes the solenoid valve, turns off the green light, and energizes a red light to indicate the cycle's end.

Provisions have been made to install electronic controls on the two groups of domestic meter provers. These controls will make the accuracy test completely automatic. At present, provers are operated manually. * * *

Provers for large meters. A three-way, powered bridge crane is used to transport heavy meters. Hydraulic floor lift tables ease repair work ←— on large meters.



Separate, sound-proofed instrument repair room is provided for handling indexes, volume and pressure gages, clocks, and other instruments. Shown here is technician repairing chart-drive clock.

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The new Dresser Style 91 Service Saddle has been carefully designed for maximum dependability, economy and ease in making gas service connections.

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Style 91 Saddles are heavily galvanized or protected with Dresser's new plastic dip. This coating covers all threads as well as saddle surfaces, has dielectric strength, will not "plate out". Saddles are packaged for convenient handling and storage.

Order a stock of Dresser's new, economical Style 91 Saddles today. Your Dresser field engineer has full details.

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"WHERE GAS IS GROWING"...

Distribution Developments

. . . news about current and planned construction

EDITOR'S NOTE: With this issue, American Gas Journal begins a new feature devoted to reporting developments on current and planned gas distribution construction throughout the country. News about big and small companies alike will be reported, covering their plans for expansion, where work is currently underway, and who is performing the construction. Comments from readers on this new feature will be appreciated; photographs of construction work will be welcomed. **The Editors**

Northern Illinois Gas Company, Aurora, Illinois, plans construction work in 1958 that will be undertaken throughout the 263 communities in its service area, with approximately 75 percent of the work in the Chicago suburban area. Included in its general plans are installation of approximately 30,000 new services, aggregating some 2,100,000 ft of ¾ and 1¼-in. pipe; approximately 2,500,000 ft of new main, mostly 2 and 4-in. coated and wrapped steel pipe to operate at medium pressure (10 to 30 psi), to meet new business requirements; and approximately 230,000 ft of main for replacements and system improvement and revision, most of which will be coated and wrapped steel pipe in sizes up to 12-in. Company installs services, while most of main work is done by local contractors. In addition to new mains, company also plans to build a $300,000 warehouse at Bellwood, a $500,000 operating headquarters at Joliet, and a $400,000 operating headquarters at Crystal Lake.

Rockland Light and Power Company, Middletown, New York, plans several important construction projects in its service area in 1958. Included in the plans are construction of 67,250 ft of 16-in. high-pressure main in the Spring Valley area to serve various towns, villages, and hamlets in Rockland County along with 162,200 ft of 2 through 12-in. mains; construction of 5400 ft of 4-in. and 5000 ft of 2-in. in the Port Jervis area, and construction of 91,200 ft of 2 through 10-in. cast iron main operating at low pressure to serve the Orange County area. All lines 6-in. and above are contracted, company does other work. No contractors have yet been named.

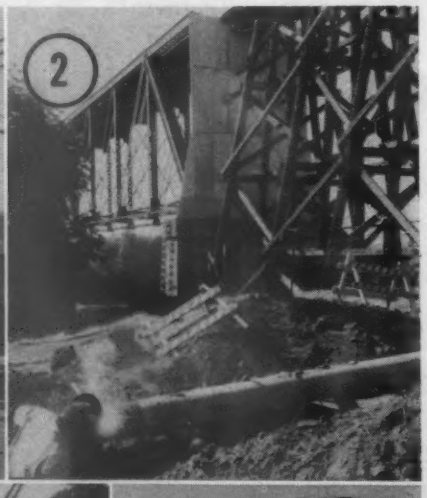
Atlanta Gas Light Company, Atlanta, Georgia, plans a record construction budget of $9,581,500 for the fiscal year ending September 1958. Major part of the budget will be for extension of service (new mains, related facilities) to about 19,000 new customers. Other important items include propane storage facilities in Augusta, Rome, Macon, and Atlanta; construction of distribution systems in several new communities, and general improvements.

Southern Counties Gas Company of California, Los Angeles, plans expenditures of approximately $10,000,000 in 1958 to bring gas service to customers not now connected to the company's lines. Plans call for addition of some 1136 miles of new mains of various sizes to be added to its distribution system. Another $4,000,000 has been earmarked for replacement and relocation of various lines, plus $2,700,000 for new buildings.

Bluefield Gas Company, Bluefield, West Virginia, has completed work on 3000 ft of 3 and 4-in. intermediate pressure main additions to its system. Contractor on job was Gas Service, Inc., of Bluefield.

Central Natural Gas Company, Hastings, Minnesota, has added 11,000 ft of new 2 and 4-in. main to its intermediate pressure system. No construction is planned during the winter months. Company does its own work.

Frederick Gas Company, Inc., of Frederick, Maryland, plans construction in 1958 of approximately 8000 ft of 2, 3, and 4-in. main additions to its distribution system. Cost will range from $40,000 to $50,000.



Improvements and changes at a cost of $1,800,000 were made in 1957 to Portland Gas & Coke Company's distribution system. Pictured here are scenes from a few of the many projects: 1) New 16-in. plug valve installed on St. Helens Road near 35th Avenue in Portland. 2) Valley line improvements included new risers to railroad bridge across Willamette River at Wilsonville. 3-4) Submarine crossing of Tualatin River, where pipe was given negative buoyancy with concrete weights. Crossing replaced temporary crossing on side of highway bridge. 5) Over 1000 ft of main serving Albany, Lebanon, and Corvallis was lowered 10 ft to clear way for county road project.

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Increased demands for more gas in Bexley, Ohio, resulted in $56,000 construction project. Large supply main is being lowered-in in above photo. The sign, "GAS MEN AT WORK," is becoming familiar to Ohioans as Ohio Fuel Gas Company builds for its growing market.

Lone Star Gas Company crew welds joint of 8-in. pipe on main construction project in growing Oak Cliff area of Dallas, Texas. Field joint will be applied later to give continuity of protection against corrosion provided by mill-wrapped pipe.

Kansas-Nebraska Natural Gas Company, Inc., Hastings, Nebraska, has distribution construction projects for 1958 that include 26,300 ft of 2-in. and smaller pipe for intermediate pressure system in Utica, and 14,300 ft of 2-in. and smaller in Waco for intermediate pressure system. Both systems to be contracted. Jobs completed this year include 14,700 ft in Phillips and 16,300 ft in Marquette, both of 2-in. and smaller pipe, intermediate pressure systems installed by J. T. Brodie Construction Company.

New Britain Gas Light Company, New Britain, Connecticut, has construction projects completed or nearing completion that include 15,000 ft of 6-in. intermediate pressure mains, 7000 ft of 10-in. high pressure mains, and 7000 ft of 4-in., 12,000 ft of 6-in., and 2000 ft of 8-in. low pressure mains, all in company's franchise area that includes New Britain, Berlin, and Newington.

Metropolitan Utilities District, Omaha, Nebraska, has projects for 1958 including an estimated 100,000 ft of new 2, 3, 4, and 6-in. main construction for residential customers, at cost of $225,000 (does not include major feeder mains); 9500 ft of 12-in. high pressure reinforcing main in two projects — one of 5200 ft and one of 4300 ft at cost of approximately $95,000; undetermined amount of 2 through 8-in. main construction for industrial customers and system reinforcing, estimated cost of $175,000; and undetermined number of new regulator stations to be constructed, estimated cost, $86,000. All of work is done by company forces, with most work to begin after March 15.

In Iowa City, Iowa, mainman journeyman for Iowa-Illinois Gas and Electric Company digs bellhole around main so crew can connect service pipe from customer's house.

Minneapolis Gas Company, Minneapolis, Minnesota, plans to install some 380,000 ft of 2 through 12-in. main in its high and low pressure distribution systems in 1958. About 40,000 ft of the total is replacement for existing main, principally in low pressure systems. Company makes all small extensions and installs all service lines. Contractor, Williams Brothers Construction Company, makes all installations not done by company crews.

Keokuk Gas Service Company, Keokuk, Iowa, is working on 2500 ft of 2½-in. intermediate pressure mains to be completed in 1958. Company will begin work on 3000 ft of 8-in. low pressure main in 1958, to be completed in 1959.

Piedmont Natural Gas Company, Charlotte, North Carolina, plans additions to its distribution systems in North and South Carolina in 1958 that include 92,954 ft of 6-in., 36,975 ft of 8-in., and 71,933 ft of 10-in., plus an undetermined quantity of 2 and 4-in. pipe. Contractor for major work will be Louisiana-Mississippi Pipeline Construction Company of North Carolina.

"Performance Exceeded Expectations"

"Where does it get all that power?" and "Don't let its size fool you!" are common expressions from owners and operators of John Deere Crawlers.

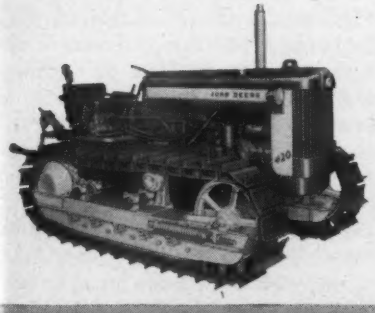
AMONG the many pleasantly surprised users are the Pacific Pipe Line Construction and S. E. Construction folks who used six John Deere Crawlers with angle blades and sideboom attachments in the construction of the gas distribution system in Regina, Saskatchewan, Canada.

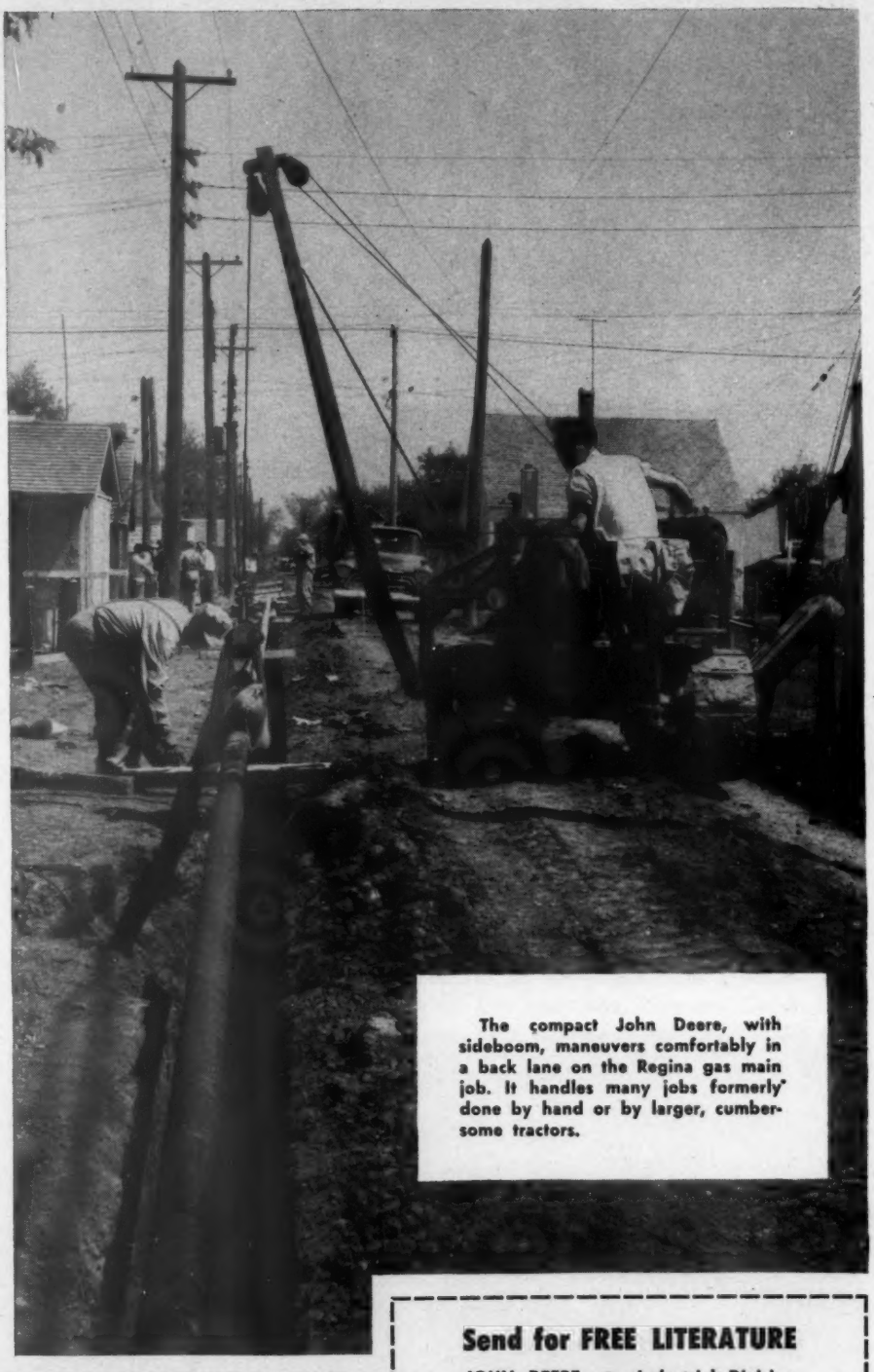
Mr. E. A. Ackerman, project manager, writes:

"The John Deere units were used to handle pipe in 40-foot lengths up to 10-inch diameter for line-up and for backfill operations. In all cases their performance far exceeded expectations. Operators who formerly handled much larger sideboom tractors, remarked on the ease of operation and ability of the machines to do the work required.

"We consider these units to be a tremendous asset to our jobs because of their versatility and low operating and maintenance cost."

For further information on John Deere Crawler and Wheel-Type Tractors, see your nearest John Deere Industrial Dealer, or write to John Deere, Industrial Division, Moline, Ill.





The compact John Deere, with sideboom, maneuvers comfortably in a back lane on the Regina gas main job. It handles many jobs formerly done by hand or by larger, cumbersome tractors.

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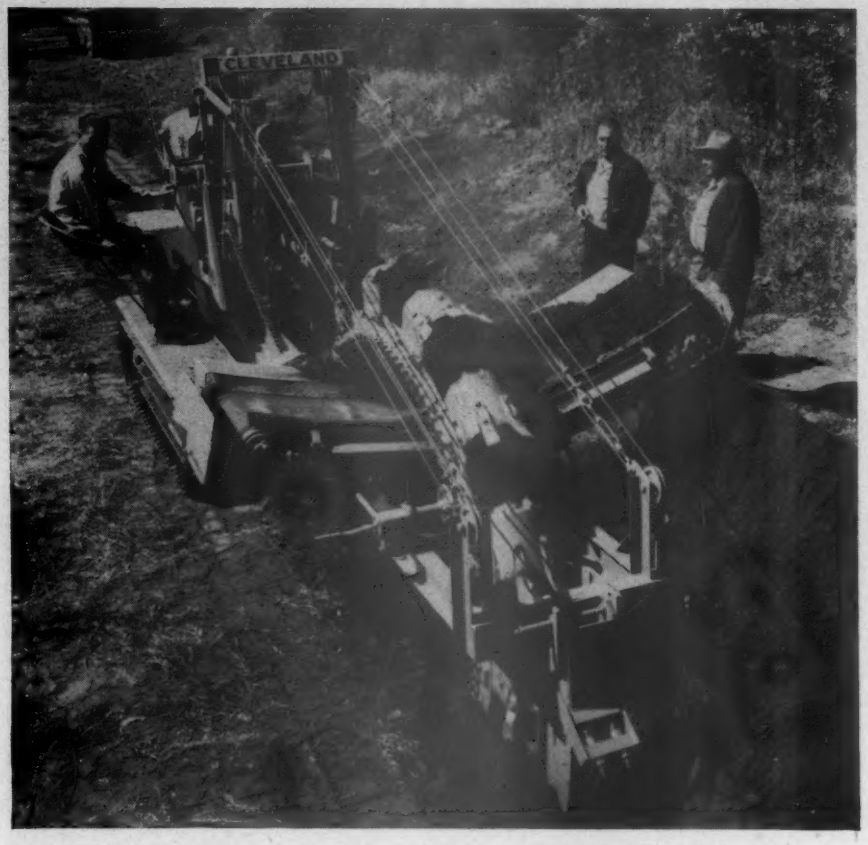
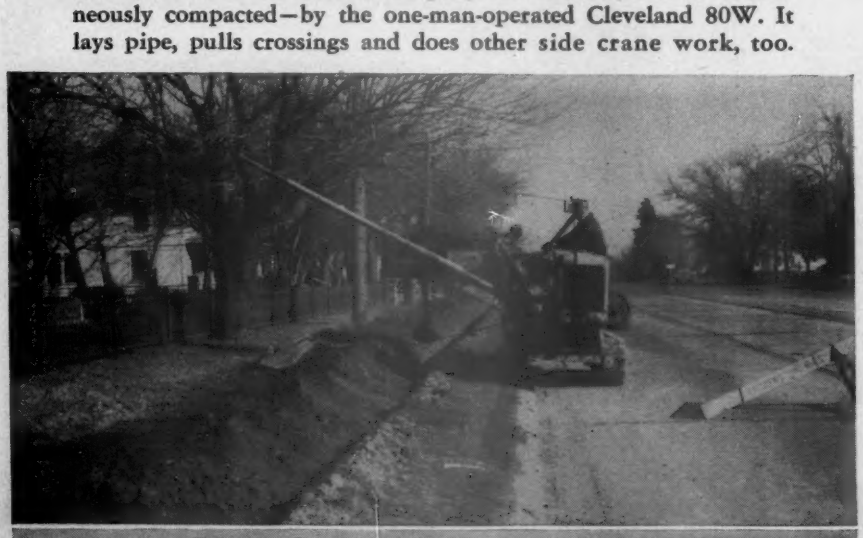


This gas company crew is putting a new Cleveland 110 through its paces. Like so many others who know Cleveland's fitness for utility distribution work, this Indiana company has standardized on Clevelands for more than 20 years.

Mains of the same Indiana company are backfilled—and simultaneously compacted—by the one-man-operated Cleveland 80W. It lays pipe, pulls crossings and does other side crane work, too.



THE CLEVELAND TRENCHER CO.

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Good Everywhere

New Bedford Gas & Edison Light Company, New Bedford, Massachusetts, plans to install in New Bedford 5000 ft of 12-in. high pressure main, along with regulator station to feed a low-pressure area. Cost estimated at $80,000. Work to be contracted. Company also plans to install approximately 25,000 ft of 2, 4, and 6-in. additions to its general distribution system. Work will be performed by company crews and contractors.

New source of Natural Gas Supply for the Central Hudson Gas & Electric Corporation was tapped in December when Ernest R. Acker, president, right, and Omar H. Simonds Jr., general sales manager of Tennessee Gas Transmission, turned a valve at Cedar Hill flow control station near Albany, New York. Ceremonies marked the completion of Central Hudson's new $2,700,000 10-in. gas line running 52 miles from Kingston to Cedar Hill through the northern part of the utility's service area. New source will strengthen utility's existing system, provide for requirements of the rapidly growing Kingston-Saugerties-Catskill area, and supply 650 customers in the Village of Catskill who have been served with manufactured gas.

Illinois Power Company, Decatur, Illinois, has under construction several projects, including 5424 ft of 10 and 14-in. feeder line replacement in Belleville, with Vedal Pipeline Construction Company as contractor for job; 6815 ft of 2 and 4-in. high pressure distribution mains in Centralia, by United Pipeline Company; 12,034 ft of 4, 6, 8, 10, and 12-in. high pressure distribution mains in East St. Louis, by United; and 42,000 ft of 8-in. high pressure feeder line in Granite City, also by United. Jobs completed include 176,010 ft of ¾ through 6-in. main in Carlyle and Hoffman, a complete new gas distribution system, by Holdren Construction Company; 30,673 ft of ¾ through 4-in. main in new system, for Annawan, 76,408 ft of ¾ through 4-in. main for new system in Cambridge, 22,941 ft of 2 through 12-in. mains in Champaign, and 14,014 ft of 2 through 8-in. new mains in Danville, all contracted by United Pipeline Company; 11,612 ft of 6-in. loop line in Gillespie, and 112,011 ft of 4 and 6-in. distribution lines and an 8-in. feeder line, in Hillsboro, all laid by Vedal Pipeline Construction Company.

THE LAW and the gas utility industry

Prepared by Leo T. Parker, attorney at law and contributing editor

Franchises Must Be Considered in Setting Rates

Here's an unusual letter from an official of a large gas corporation. He wants to know whether or not a Public Service Commission may establish valid rates for gas without regard or consideration of the franchise held by the gas corporation, if such new rates benefit gas consumers.

A recent higher court held that, if there is a valid contract or franchise granted or signed by the city, fixing or regulating rates or charges, the Public Service Commission has no power to change or alter the rates because such rates are fixed by agreement and not subject to control of the commission. Franchise provisions must then prevail and control in rate disputes. On the other hand, of course, if a franchise gave to the Public Service Commission the right to determine, fix and establish rates that are just and reasonable, rates established by the commission will be upheld if such rates are reasonable, and not in violation with the terms of the franchise. Otherwise, the rates established by the commission are illegal.

For example, in *City of Mt. Pleasant v. Michigan Public Service Commission, 69 N. W. (2d) 837,* the testimony showed facts, as follows:

A 30-year franchise was issued in 1931 to a corporation in Michigan.

The franchise contained a clause to the effect that the gas corporation "shall bring or shall cause to be brought natural gas to the corporate limits of said city" and at some future date, due to the exhaustion or depletion of the supply of natural gas, if the gas corporation is unable to procure and distribute natural gas, without negligence, the gas corporation may be allowed to change over and substitute artificial gas, or a mixture of artificial and natural gas. The franchise also provided that should such change and substitution be allowed by the city, then the rates to be charged the inhabitants for such artificial gas or mixture shall be fixed and established by the mutual agreement of the city and the gas corporation.

The 1931 franchise established the rates for gas service for 3 years with the further provision that subsequent rates were to be determined upon mutual consent, and if the parties were unable to agree upon a revision of rates "either party . . . may apply to the Michigan Public Utilities Commission to fix and establish rates, in which case the rates so fixed, if just and reasonable, shall prevail".

The Michigan Public Service Commission ordered revision of rates in 1935 and 1936, and the 1936 rate was in effect until recently.

In 1948, the Michigan Public Service Commission applied to the commission for a gas rate revision. The gas corporation sought to have the new schedule of rates determined on the basis of costs for the furnishing of gas on a district basis rather than a local city basis. In the meantime, the gas corporation constructed a plant to manufacture gas. This was done solely because these facilities are maintained to temporarily insure an adequate supply of gas for the entire system, including the city, in case of an emergency such as a line break in the supplying pipe lines.

The commission authorized increased rates partly based on the additional cost of the gas manufacturing plant. The city appealed to the higher court which held that where there was no reason to anticipate an emergency natural gas shortage and the municipal franchise gave the municipality a priority upon the supply of natural gas, it was improper to include in the rate base the cost of maintaining the gas corporation's gas manufacturing facilities. The court said:

"Section 10 of the franchise provides that the gas company can only furnish the city with artificial gas or a mixture of artificial and natural gas after first convincing the city that failure to distribute natural gas is not due to the neglect or default of the company and secondly after so convincing the city, obtaining the city's consent. The record discloses that no consent has ever been obtained by said company."

This court also held that the gas corporation's special deal with industrial gas users for interruptible gas service at a lower rate did not violate the terms of the gas corporation's franchise, since no one was compelled to use such service and it was offered only to those who could arrange their facilities to use such interruptible gas service at the lower rate. In this respect, the court said:

"There is a period each year during the spring, summer and fall seasons when there is a diminished need for gas for house-heating purposes. Consequently, during this period, a considerable volume of gas is available for sale in excess of requirements by the customers. This rate is properly entitled a special industrial large volume rate and no one is compelled to use this service. It is offered to those who can arrange their facilities to use this interruptible gas service at a lower rate. It does not violate the terms of the franchise."

Gas Is Company's Liability

Another reader asks this question: "If a gas company removes its meter and service from an abandoned dwelling, what responsibilities has the company with respect to later purchasers of the property?"

According to a late higher court decision, the gas company must be certain that the gas service line from the dwelling to the gas main contains no gas. This is so although the gas pipe from the dwelling to the street main line belongs to the owner of the lot, or abandoned dwelling.

For example, in *Goodman v. Scranton Company, 43 Atl. (2d) 111,* it was shown that a gas company removed its meters from an abandoned house and capped the service pipe inside the cellar wall. Thus, gas was in the pipe under pressure from the street to the main.

Later in that same year the house was torn down; the cellar filled in and the service pipe buried in earth, cinders and debris. One year later a factory building was erected upon the lot. Three years later the factory building and its contents were severely damaged by a violent gas explosion, and a number of additional minor explosions which occurred intermittently during the succeeding two hours. The owner of the factory building sued the gas company for damages amounting to $49,081.09.

The lower court held the gas company liable for $20,000. The higher court generally approved the verdict, except that it believed the damage allowance was too low. The court said:

"In the present case defendant (gas company) is liable for the accident which occurred because the unusual facts imposed upon it an even greater measure of responsibility than that to which it would thus have been subject had it been continuing to furnish gas to the owner of the property. While the pipe itself continued, of course, to belong to the owner of the property, the gas in it belonged to the defendant (gas company)." * * *

Toward Better Management

One of a Series

Essentials for New Office Routines

Ernest W. Fair

HOW do outstanding gas company executives establish successful office routines? Here are some of their suggestions you can use to assure maximum efficiency whether the project is large or small, based on a recent survey.

Today's modern office problems call for changes in the old routines. Methods which worked successfully a few years ago are obsolete today because of new discoveries in equipment, materials, and management methods as well.

The first step in establishing a successful office routine is **examination of present procedures and determining if every step is justifiable and in proper sequence.** Any plan designed to expedite office work can be cumbersome and unwieldy when every step is not economically justified. This outmoded uneconomical step may be the result of old habits, or reluctance to abandon old methods that have become fixed through custom. However, these must be cast aside today. High costs of office salaries, to cite just one reason, require there be no waste in office routine.

Each step must expedite the work. Roadblocks cost money, delay final procedures, and often create confusion farther down the line. Office work must be kept moving smoothly all of the time and not held up at any point in the routine.

The flow of work must be steady and routine. We always secure maximum work output from any member of the office staff when the work can be handled smoothly and without interruption. This is particularly apparent when a routine involves "stops-and-starts" at a given desk. Extra effort after every stop must always be expended for the individual to get back into the work routine.

Order of each step should aid record taking. Recent studies show one of the most common causes of slow ups and added expense in many office routines is "record taking." The order of each step should be such that records required will not delay the service involved.

Time rationing should be considered. Equality of the time required for each step should be sought in planning any new office routine. Where steps in the work flow have been timed properly, confusion is held to a minimum, and maximum use of the staff personnel is more nearly obtained. Again, the high costs of today's office salaries demand that each individual be kept busy. Waiting around for work to catch up from other steps in the work flow is too expensive for any office to carry.

Guard against duplication of work. Management experts tell us that almost invariably the worst efficiency offender, *duplication,* can be found at one or more points in the work flow. After the entire program has been drawn up, management experts suggest making one extra overall check to make certain there is no duplication in the work routine.

Avoid needless writing or typing. It is difficult for the individual executive to discover these duplications, as he is usually too close to the work. However, they are readily apparent to an expert. Where one has to do the checking oneself the best procedure, is to examine every step of the way with one thought in mind — "Can writing or typing be eliminated at this step?"

Develop the habit of accuracy. BUT, avoid needless checking. One of the biggest headaches in the operation of

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Start now to provide full automation of pipeline control systems by installing the SIE Compressor Start Unit . . . the basis of tomorrow's completely automatic, and today's semi-automatic, operations. *Right now* the SIE Compressor Start Unit offers these important advantages in daily operation:

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any office routine arises from mistakes, since they seldom affect one spot and usually touch every phase of the routine. However, we can become "too security conscious" or place too great emphasis on obtaining accuracy. When such steps proceed beyond the actual need, they create sheer waste in any routine. The proper number of checks are always advisable, but too many seldom increase the desired result; rather they tend to impair it.

Eliminate superfluous steps or motions. Here is another point where an overall check after the routine has been set up is advisable. Experts tell us that too often the office executive, in setting up the new routine, is so busy establishing other necessary points, that some superfluous steps or motions are overlooked. These can be discovered and discarded by a study designed for that purpose alone.

Get the steps in proper order. It has been found best practice to re-examine a new office routine a few days after it has been placed in initial operation to discover whether or not steps involved can be shifted around to improve the routine. It usually takes a week of "shake down" to make all of them involved in the new plan apparent.

Use the best equipment. Many times a few additions to the office equipment or a replacement for a more modern piece of equipment can do marvels in lowering the cost of a routine as well as speeding it up. We too often design new routines solely on the basis of present equipment. Consideration should also be given to dollar return through improved routine that a minor expenditure for more modern equipment may make possible in the program being developed.

Be sure the results cannot be obtained less expensively. Error on this point usually occurs because of eagerness to include established and proved methods developed over the years in any new routine. Actually the need for the routine may call for complete discard of such traditional methods and injection of entirely new procedures. No new office routine should be established without investigating the possibility of better and less expensive ways to handle any step.

It is also vitally important, we are cautioned as one final suggestion, to **be certain that each step isn't costing more than it is worth.** Where we find the results being secured add materially to the overall cost, then that step needs very close examination before being included in any new office routine plan we may be developing. * *

Tobacco Sheet Dried in Gas Oven

Arthur Q. Smith
American Gas Association New York

THERE IS NOTHING NEW OR NOVEL in the use of gas fuel for high-speed drying operations; it's been in use in many industries since gas was first available for industrial use. Today, its use is almost universal for the rapid drying and finishing of thousands of products. The paint on modern automobiles is set and dried in a gas-fired oven; textiles used for everyday clothing are processed or finished by gas heat at one or more points along the line of manufacture. Paper mills are realizing how production can be speeded through use of auxiliary gas burners on the first drying drums. These and many other uses are now commonplace and accepted techniques for almost everything that is manufactured.

Synthetic tobacco sheet is stripped from stainless steel belt after being dried in a multiple-zone direct gas-fired continuous oven. This cigar binder material is made by NuWay Tobacco Company, Rockville, Connecticut, under patent licenses granted by American Machine & Foundry Company.

Because the use of gas-heated air is so efficient and clean, and because it is the most satisfactory and controllable fuel, The NuWay Tobacco Company, Rockville, Connecticut, is making use of this medium to dry their product — a tobacco sheet.

For years, tobacco growers in the Connecticut Valley have been faced with the problem of what to do with their famous Connecticut Broadleaf that had been damaged by storm or was not perfect enough to be used as cigar wrappers. Substantial losses were incurred over the years for these reasons. Recently there has been a development whereby this tobacco can be processed into a useful and profitable form — a sheet of tobacco made for the prime purpose of cigar binders.

Several organizations are producing this tobacco sheet and one of the most recently built plants is The NuWay Tobacco Company mentioned above. Actual processing comprises comparatively few operations that are all automatic, yet result in a most novel product that is actually a sheet of pure tobacco.

Raw tobacco as received by NuWay is shredded Connecticut Broadleaf. At the plant, it is cleaned of sand, dried in a rotary steam heated kiln, and then ground to a fine powder. The next operations are solely for the purpose of having the ground tobacco in a suitable form so that the sheet can be formed. Tobacco flour is mixed in a tank with water and an adhesive, resulting in a slurry that is then spread in desired thicknesses onto a continuous stainless steel belt.

From the point where the slurry is deposited on the belt, the coated belt enters a direct multiple zone gas-fired drying oven where practically all of the moisture is removed from the sheet. This oven is approximately 42 ft long and has line burners on both sides of the belt for nearly the entire length of the oven.

Operating temperatures can be varied up to 700 F, depending on the amount of water in the slurry and the production rate desired. Heat input may then run on the order of 1,500,000 Btu per hr.

At the discharge end of the oven, the dried sheet is stripped off the belt by a blade, wound in 30-lb rolls and stored in a humidified and air conditioned room. This wide sheet is subsequently slit to various widths as required for particular types and sizes of cigars in which it will eventually be used as a binder.

Plant engineering and installation was carried out by American Machine & Foundry Company, under whose tobacco sheet patents NuWay is licensed. * * *

Coming Events

IN THE GAS UTILITY INDUSTRY

January 1958

19-23 National Association of Home Builders Convention, Chicago, Illinois (AGA will exhibit).
20-21 Compressed Gas Association, Inc., 45th annual meeting, Waldorf-Astoria, New York, New York.
23 NEGA, operating division, Hotel Statler, Boston, Massachusetts.
23-24 Public Utilities Advertising Association, San Francisco, California.
27-29 American Society of Heating and Air Conditioning Engineers, annual meeting, Pittsburgh, Pennsylvania.
28-29 PCGA-AGA Western PR Workshop, The Riviera Hotel, Las Vegas, Nevada.
30 NEGA, accounting division, Hotel Statler, Boston, Massachusetts.

February 1958

3- 7 Western Winter Radio-Television & Appliance Market, Western Merchandise Mart, San Francisco, California.
26 NEGA street department supervisors group, Hotel Bancroft, Worcester, Massachusetts.

March 1958

17-21 National Association of Corrosion Engineers, San Francisco, California.
20-21 NEGA, annual meeting, Hotel Statler, Boston, Massachusetts.
24-26 Mid-West Gas Association, Broadmoor Hotel, Colorado Springs, Colorado.
27-28 Oklahoma Utilities Association, annual convention, Biltmore Hotel, Oklahoma City, Oklahoma.
31-April 2 GAMA, annual meeting, Greenbrier, White Sulphur Springs, West Virginia.

April 1958

8-10 AGA sales conference on industrial and commercial gas, Hotel Schroeder, Milwaukee, Wisconsin.
14-16 National Conference of Electric and Gas Utility Accountants, Shamrock Hilton Hotel, Houston, Texas.
15-17 Southwestern Gas Measurement Short Course, University of Oklahoma, North Campus, Norman, Oklahoma.
17-18 Indiana Gas Association, annual convention, French Lick-Sheraton Hotel, French Lick, Indiana.
28-30 SGA annual convention, Dallas, Texas.

May 1958

4- 7 LPGA annual meeting, Conrad Hilton Hotel, Chicago, Illinois.
4- 7 Air Conditioning & Refrigeration Institute, annual meeting, The Homestead, Hot Springs, Virginia.
5- 9 AGA distribution, production, and transmission conference, The Roosevelt and Commodore hotels, New York, New York.
5- 9 National Restaurant Association convention and exposition, Navy Pier, Chicago, Illinois (AGA will exhibit).
19-23 National Fire Protection Association, annual meeting, Palmer House, Chicago, Illinois.
20-22 Pennsylvania Gas Association, annual meeting, Pocono Manor Inn, Pocono Manor, Pennsylvania.

June 1958

10-12 Appalachian Underground Short Course, West Virginia University, Morgantown, West Virginia.

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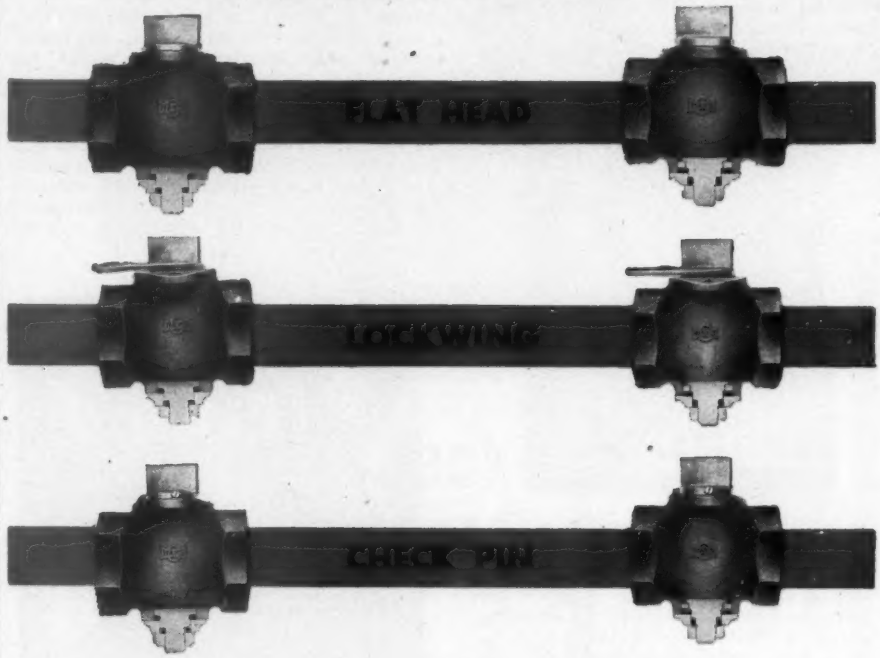

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Heat Problems of Missile Manufacture Studied. Industrial gas equipment manufacturers are on the threshold of developing 5000-deg furnaces for production processes essential to rocket and missile manufacture was disclosed at a meeting of the GAMA industrial division, where the challenge of rocket production was given as one of the main indications of a "busy year ahead" for gas equipment. makers. E. J. Funk, Jr., chief engineer, C. M. Kemp Manufacturing Company, said the challenge consisted of achieving furnace temperatures of sufficient intensity to produce and shape ultimate substance of the missile's body, whether metal, ceramic, or a combination of both, so that it can withstand aerodynamic heat. Missile manufacturers want heating rates of temperatures as high as 5000 deg. The hottest known furnace temperature using natural gas and room temperature air is 3200 deg.

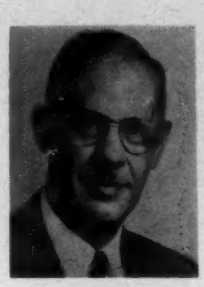
Southern Counties Gas Company is constructing a 13-story headquarters office building in downtown Los Angeles. Expected to cost $2,250,000, the building will go up on a 55-by-150-foot lot adjoining existing buildings of Southern California Gas Company. Ground floor of the new structure will be used as a display and customer contact area by the utility. Also to be housed in the new building will be Pacific Lighting Gas Supply Company, and local executive offices of the Pacific Lighting Corporation. Building is slated for occupancy by July, 1959.

Major Safety Crusade Planned for 1958. A safety crusade will be launched by the AGA in 20 or more cities during 1958, J. Theodore Wolfe, president of Baltimore Gas and Electric Company, announced recently.

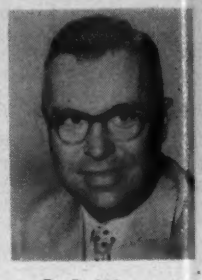
New President Elected at Equitable Gas. Donald B. Beecher, former vice president and general manager, has been elected to the presidency of Equitable Gas Company of Pittsburgh, Pennsylvania. A. W. Conover, former president, has been elected to chairman of the board. Beecher brings 31 years of operating, engineering, and administrative experience to his new position. He joined Equitable in 1926.

PG&E Medal Awarded Gas Serviceman Who Saved Life. Young Pacific Gas and Electric Company gas serviceman who saved a man from almost certain electrocution in North Sacramento last May 8 was honored recently by his company for his courage and good judgment. Jack L. Russell, 29, Sacramento, received PG&E's John A. Britton Silver Medal for Distinguished Service from P. E. Beckman, PG&E vice president in charge of gas operations, during a testimonial luncheon. Russell is credited with saving the life of T. E. Chappell, an appliance repairman, whom he found unconscious beneath a partially installed clothes dryer in a newly occupied home. Breathing had stopped and blood was flowing from Chappell's mouth when Russell pulled him free of the appliance.

Telemetering Equipment, a gift from Southern Counties Gas Company to the University of Southern California school of engineering, is accepted by Dean Robert E. Vivian (center), and Assistant Dean George T. Harness (right), of the engineering school, from Southern Counties Vice President Jay Davis Jr. The pieces — a recorder, transmitter, and controller — were formerly used by the utility to maintain pressures automatically in one of its eight operating divisions. At USC the instruments will find ready use for training students in petroleum, electrical, and chemical engineering.



T. J. Lambeck



O. R. Wagner

New Section Officers of the Wisconsin Utilities Association for the coming year include: Gas Operating—T. J. Lambeck, gas design and construction engineer, Wisconsin Public Service Corporation, chairman; H. F. Kolb, gas superintendent, Wisconsin Natural Gas Company, vice-chairman. Gas Sales—Owen R. Wagner, manager, industrial engineering, Milwaukee Gas Light Company, chairman; M. R. Norton, general sales manager, Wisconsin Power and Light Company, vice-chairman.

AGA Public Information Task Force. Thomas H. Evans, vice president of Equitable Gas Company, and Frank C. Sullivan, director of public relations for Southern California Gas Company, have been named to head two important AGA public relations committees. Evans, also vice-chairman of the AGA residential gas section, will serve another one-year term as chairman of the general public information planning committee. Sullivan has been named chairman of the AGA public relations committee. These two groups comprise a 35-man task force to plan and conduct the association's program to promote better public understanding of the investor-owned gas industry.

Building Fire Causes. Less than 3 percent of U.S. building fires during 1956 were attributed to gas and gas appliances, AGA reports. Gas was listed as the cause of only 21,000 compared with a total of 824,400 building fires. Defective or overheated heating and cooking equipment of all types caused an estimated 108,500 building fires. Gas-fired equipment was charged with only 9,800 such fires. Lightning alone was reported as having caused more than twice as many building fires as gas. Of the 24 causes listed by the NFPA, "smoking and matches" led the list. Greatest losses from known causes were $120.5 million attributed to "electrical fixed services, fires due to misuse, or faulty wiring, equipment".

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Suggestion on a new method for reviewing certain applications for gas service has netted $900 for Guy Howard, a collection reviewer in the credit and collection department of Peoples Gas Light and Coke Company. The suggestion award check, fourth largest given in the 34-year history of the suggestion system at Peoples Gas, was presented to Howard (right) by Joseph J. Hedrick, president. This is the fifth time Howard has collected an award and a check — his winnings now total $1,225.

Central Heat: Sharp gains from August levels for all three categories of gas equipment used in residential central heating brought September shipments close to the corresponding figures of a year ago. *Gas-fueled furnaces* of the forced warm air and gravity types accounted for shipment of 93,100 units in September, only 1.8 percent fewer than the 94,800 of the same month a year ago, and up sharply from the 74,500 August total. For nine months, the 1957 gas furnace total of 529,000 is 14.8 percent below the 620,600 for 1956, when there was a higher level of housing activity. *Gas boilers* for hot water and steam heat—manufacturers shipped 15,200 units in September, bringing the total for nine months to 73,500. Monthly total is down 4.4 percent from 1956's figure. Shipments of *conversion burners* used in changing heating systems from other fuels to gas totaled 30,100 units in September, a new monthly high for this year although 6.5 percent below the 32,200 for 1956.

Industrial furnaces: September orders totaled $2,337,000; this is 24 percent below the September 1956, total of $3,057,000. First nine months of this year, new orders totaled $45,567,000, which is down 25 percent from the 1956 nine months total of $60,523,000.

Gas Water Heater: Manufacturers shipped 240,900 automatic gas water heaters in October, 7.2 percent more than the 224,700 shipped in the same month of 1956. For 10 months, the latest shipment total of 2,192,300 units is down 9.4 percent from the 2,420,900 for the corresponding 1956 period.

Gas Ranges: Domestic gas range shipments during October set a high for the year but remained below the 1956 level despite continued gains by built-ins. Free-standing and built-in type (combined) shipments totaled 199,300 ranges in October and represented a 9 percent decrease over last year's October figure. For 10 months, the latest figure, 1,682,300, is down 10.3 percent from last year. Shipment of 19,300 built-in gas ranges during October brought the 10 month total to 162,900, only 1100 below the full-year total for 1956. Latest figures show gains of 19.1 percent and 19.6 percent, respectively, over 1956 shipments of 16,200 built-ins in October and 136,200 in 10 months.

Pacific Gas and Electric Company has installed a giant electronic computer, capable of turning out 100,000 customer bills a day. The IBM 705, an 18-ton installation, will be the largest of its type west of the Mississippi. After a gradual change-over from present billing operations—lasting about two and one-half years—the data processing machine will prepare nearly 2,000,000 customer bills per month and will handle all related records.

British Company to Manufacture Sherman Products. Ronald Bray, president of the W. C. Bray Company, Ltd., of London, England, has entered into an agreement with Sherman Products, Inc., of Royal Oak, Michigan, for the manufacture of Sherman diggers in Great Britain, under Sherman specifications. The Bray Company, which produces and markets a tractor loading device and other hydraulic equipment, will distribute the Sherman Diggers throughout the sterling area of the world. Agreement for Sherman was signed by William Romain, president of Sherman.

Expanded Capital and Personnel Resources. The Robert B. Somerville Company, Ltd. of Toronto, Canada, has expanded its capital and personnel resources through a newly announced business arrangement with the Sir Robert McAlpine & Sons Company, Ltd. of Toronto and Montreal. The well-known Canadian firm has recently purchased an interest in the Robert B. Somerville Company, Ltd. and assigned Ian Little to the Somerville staff in an executive capacity.

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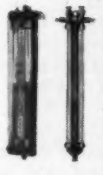

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Men At Work IN THE GAS DISTRIBUTION INDUSTRY

● **Ross Walker,** manager of the United Gas Corporation's Mississippi Coast district with headquarters in Gulfport, has been promoted to assistant manager of the Beaumont division. He succeeds **John C. Dezelle,** who has been promoted to assistant operating manager of the Texas distribution division with headquarters in Houston.

Ross Walker

W. A. Cook

● Portland Gas & Coke Company has elected **Wesley A. Cook** a director to fill the vacancy left by the recent retirement of **R. G. Barnett.**

● **L. E. "Lew" Libby** has been retained by Oklahoma Natural Gas Company as sales counsellor. He will work with distributors, dealers, and Oklahoma Natural employees in developing sales training programs. He was formerly associated for 23 years with Servel, Inc.

● **R. Frank Nowlin,** engineer in the Texas distribution division of United Gas Corporation, has been promoted and placed in charge of operations in the Houston division. He will be in charge of gas measurement, leakage reduction, and other operations in the Houston distribution system of United Gas.

● Florence Stove Company has announced that **Stanley H. Hobson** has been elected chairman of the board of directors and **J. H. Makemson** has been elected a director. **George B. Colburn,** who retired August 31, resigned as vice president and director, and **A. T. Atwill,** formerly president of the Quaker Manufacturing Company division, has resigned as a director.

● **Harry A. Offutt** has been appointed assistant treasurer of New York State Natural Gas Corporation. He succeeds **Fred A. Jaxtheimer,** who retired recently after 35 years in the natural gas industry.

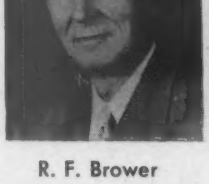
● **Miss Bonnie Dewes,** D'Arcy Advertising Company account executive for the Laclede Gas Company, was honored recently as "St. Louis Advertising Woman of the Year" by the Women's Advertising Club. Miss Dewes is the only woman advertising agency executive in the nation serving a gas company the size of Laclede Gas.

● Two promotions in sales personnel of the Lunkenheimer Company have been announced. They are: **George W. Lambertson,** formerly Chicago branch manager, has been promoted to a division sales manager; **Jack W. Montgomery,** sales representative at the Chicago office, succeeds Lambertson as branch manager.

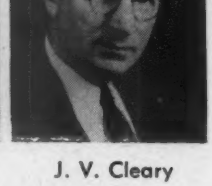
● **Samuel Green** has been elected senior vice president and **A. Dudley Harrison** vice president and chief engineer of The Brooklyn Union Gas Company. Green was formerly vice president and chief engineer and Harrison was formerly assistant vice president.

● Recent organizational changes in the gas department of Public Service Electric and Gas Company include: **H. Whitcomb Nicolson,** from general superintendent of gas distribution to assistant to the vice president in charge of gas operation; **Charles R. Dewhurst,** from industrial relations manager to general superintendent of gas distribution; **Carroll D. James,** from assistant industrial relations manager to industrial relations manager; and **L. Martin Harris,** from distribution staff engineer to manager of methods.

● **Lawrence F. O'Connor** has been promoted to senior domestic sales engineer in the domestic sales department of The Peoples Gas Light and Coke Company. He will be in charge of the heating clinic in the main floor showroom of Peoples Gas building.



R. F. Brower



J. V. Cleary

● Consolidated Edison Company of New York has announced the election of **R. Frank Brower** and **John V. Cleary** as vice presidents; **Emanuel Toder** as controller; **Ralph F. Norris** as assistant vice president, and **John D. Gray** as assistant treasurer.

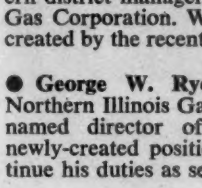
● Arkla Air Conditioning Corporation that recently purchased the air conditioning division of Servel, Inc., has added four new directors. They are: **L. L. Baxter,** president, Arkansas Western Gas Company; **W. W. Selzer,** director of business promotion, Columbia Gas System Service Corporation; **S. R. Walker,** president, Fort Smith Gas Corporation, and **C. H. Zachry,** president, Southern Union Gas Company.

● **L. R. Jensen,** formerly vice president in charge of Roper's appliance division, has joined Florence Stove Company in charge of all manufacturing operations.

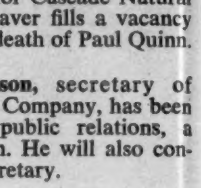
● Rockwell Manufacturing Company has announced the promotion of five leading sales officials to new sales management posts in Pittsburgh. All have been named assistants to **Herman Gottwald,** recently appointed assistant vice president and product manager-Nordstrom valves. They are: **John R. Applegate,** utilities valve sales; **Thomas I. Stacy,** transmission line valve sales; **Richard E. Miller,** valve lubricants and accessories; **Jack W. Harris,** refinery and chemical valve sales, and **Clyde H. Chronister,** production valve sales.

● **Ken Weaver** has been appointed northern district manager for Cascade Natural Gas Corporation. Weaver fills a vacancy created by the recent death of Paul Quinn.

● **George W. Ryerson,** secretary of Northern Illinois Gas Company, has been named director of public relations, a newly-created position. He will also continue his duties as secretary.



G. W. Ryerson



E. J. Boothby

● **E. J. Boothby,** president of Washington Gas Light Company has been re-elected chairman of the board of trustees of the Institute of Gas Technology. Eight trustees were re-named to the board, and three new trustees were elected during the 16th annual meeting of members and the board of trustees on the Illinois Tech campus. **Eskil I. Bjork,** chairman of the board, Peoples Gas Light & Coke Company, has been elected to a three-year term on the board. Elected to fill vacancies on the board that expire in 1959 are **Gerald T. Mullin,** president, Minneapolis Gas Company, and **R. A. Puryear, Jr.,** president, Alabama Gas Company. Re-elected to three-year terms are: **Boothby; F. M. Banks,** president, Southern California Gas Company; **James D. Cunningham,** president, Republic Flow Meters Company, **E. H. Eacker,** president, Boston Gas Company; **Robert A. Hornby,** president, Pacific Lighting Corporation; **O. S. Carpenter,** president, Texas Eastern Transmission Corporation; **J. Theodore Wolfe,** president, Baltimore Gas and Electric Company, and **George S. Young,** president, Columbia Gas System, Inc., New York.

● **Frank E. Capristo** has been named dealer promotion manager for three Pittsburgh Group Companies of the Columbia Gas System — Manufacturers Light and Heat Company, Columbia Gas of New York, Inc., and Cumberland and Allegheny Gas Company. Capristo succeeds **Joseph N. Betz** who resigned recently.

● **J. R. Cole III,** vice president and operating manager of Southern Union Gas Company's western properties, was honored recently with a diamond-studded service pin on the occasion of his 25th anniversary with the company.

● **C. Wade McCoy** has been appointed permanent vice president and general manager of Lakeland Natural Gas Limited, and will establish headquarters at the company's general offices in Kingston.

● **Martin Goland** has been appointed director of the Southwest Research Institute in addition to his duties as vice president of the Institute.

Personals

● **Deck A. Hulcy Jr.** has been appointed manager of the newly created building management department of Lone Star Gas Company and its wholly-owned subsidiary, the Lone Star Producing Company. **E. N. Brownlee,** supervisor of building and maintenance for Lone Star's General Division of Distribution, has been assigned to the new department in which he will have general supervision of work assigned to the planning section.

● Recent personnel changes announced by Alabama Gas Corporation include: **Howard Higgins,** former manager of the Opelika district, has been transferred to Birmingham to fill the position left vacant by the death of C. L. Dill. Higgins is succeeded by **William H. Donovan Jr.,** former executive assistant for operations. Donovan's position was filled by **Charles D. Downing,** manager of the industrial engineering department in Birmingham. And, Downing is succeeded by **John S. Hiam,** combustion engineer in the Birmingham industrial engineering department.

● **E. F. Beatie,** supervisor of meter reading, collections, and credit for Southern California Gas Company has been named western district representative of the Public Utilities Industry Committee of the National Association of Credit Men.

● **Roy N. Dreiman,** assistant comptroller, Pacific Gas & Electric Company, has been elected a vice president of the San Francisco Control of the Controllers Institute of America. At the annual meeting of the organization's District of Columbia Control, **Carroll C. Pike,** comptroller, Washington Gas Light Company, was chosen treasurer. Elected directors of the Institute local Controls in their respective areas were: **John B. Cookenboo,** vice president and treasurer, Houston Natural Gas Corporation, and **R. E. Daniel,** vice president, Texas Eastern Transmission Corporation; **Charles C. Drummond,** secretary and treasurer, Commonwealth Natural Gas Corporation; **Robert E. Hull,** comptroller, United Gas Corporation; and **Bayard F. Wobacker,** assistant treasurer, Southern Union Gas Company; **Laurence D. Luey,** assistant treasurer, Southern Union Gas Company; **John MacLachlan,** secretary and assistant treasurer, New England Gas and Electric Association, and **Arthur C. Rhyne,** secretary and controller, General Gas Corporation.

● Consolidated Edison has announced that **Harland C. Forbes,** president since 1955, has been elected chairman of the board; **Charles E. Eble** has been elected president and a member of the board of trustees, and **James F. Fairman, Earl L. Griffith** and **L. A. Scofield,** vice presidents of Con Edison, have been named senior vice presidents.

● **Jack A. Graham** and **Charles Davies** have been elected assistant secretary and assistant treasurer of the San Diego Gas & Electric Company.

C. L. Dill Jr.

C. L. Dill Jr., manager of the Birmingham plant of Alabama Gas Corporation, died after a short illness October 6, 1957.

"Trouble-Shooting" Tip to Utility Service-Men

When a gas-vent installer places the red-and-black Metalbestos "Safety System" Seal above an appliance's draft hood, he's helping the service-man locate any future gas installation trouble . . . by telling him it's *not* in the gas vent. That's because the Safety Seal means an all-Metalbestos gas vent, designed and installed according to the Metalbestos "Safety System" Gas Vent Tables.

The Metalbestos "Safety Seal" stands for scientific, quality gas venting . . . free from unhealthy spillage at the draft hood and corrosive condensation within the vent. Learn to look for the Metalbestos "Safety Seal" and promote its use. It's good for your business . . . good for gas.

For complete information on the new Metalbestos "Safety System," write Dept. AA-12.

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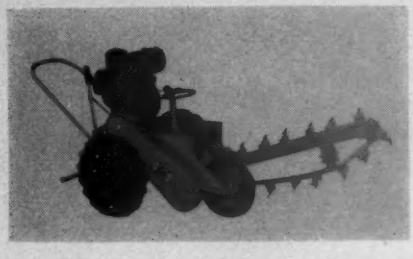
FOR THE GAS DISTRIBUTION INDUSTRY

For more information on items described here in brief, use the handy reply card and circle the corresponding numbers



Trencher. New features now offered on the Model M Ditch Witch trencher include: 9.2 hp AENL Wisconsin air cooled engine; larger 6-12 drive wheels for better traction; quick adjusting clutch link to adjust for drive belt stretch to keep trencher performing at top efficiency, and two types of digging teeth — cup cutters and chisels — to provide most efficient digging under all conditions. Among optional features available on new Model M trenchers are: Dual wheels for both drive wheels and front wheel for maximum flotation and traction where necessary, and a master clutch used for roading machine with digging chain stopped. Model M Ditch Witch is offered standard for 4 ft maximum depth and 6 in. maximum width trench. Unit has been supplied to dig as deep as 5 ft in areas where digging conditions are suitable. *The Charles Machine Works Inc.*

CIRCLE (1) ON THE REPLY CARD

Permaclamp Catalog. Dresser Manufacturing Division, one of the Dresser Industries, Inc., has announced a new catalog describing the Dresser Style 75 Permaclamp. Well-illustrated with photographs and drawings, catalog shows how the Permaclamp provides a fast, simple, permanent ways of repairing small leaks, cracks, and splits in steel pipelines carrying pressures up to 1200 psi. *Dresser Manufacturing Division.*

CIRCLE (2) ON THE REPLY CARD

Lab Furnace. Selas Corporation has developed a compact, low-cost crucible furnace for the laboratory for small melts and for testing of small samples at temperatures up to 2650 F. Crucible furnace can be fired by any available fuel gas (natural, manufactured, mixed, or LP) and air under low pressure, and is chambered for crucibles up to 15/16 in. base diameter by 2¼ in. high. Design of the crucible furnace is based on a similar production furnace field-tested over a number of years in such uses as melting dental metals and dip-welding wires. *Selas Corporation of America.*

CIRCLE (3) ON THE REPLY CARD

Globe Type Needle Valve. Entirely new globe type needle valve, designated Type N-28, for use as a gage or for metering service has been announced by Kerotest Manufacturing Company. Unit has been developed for use in any application where a high-pressure, accurately controlled, perfect shut-off needle valve is required. Has maximum working pressure of 10,000 psi at 70 F, and a maximum operating temperature of 500 F. *Kerotest Manufacturing Company.*

CIRCLE (4) ON THE REPLY CARD

New Combination Valve-Pilot Safety Control. Minneapolis-Honeywell has introduced a new combination gas valve and automatic pilot safety control for residential central heating units. Designated V81, the unit eliminates use of a separate pilot safety control. Gas valve portion of the device is the same field-proved V80. The Pilotstat (pilot safety control) is attached in a separate casting to the upstream side of the gas valve. All V81 units have the safe-light feature, and meet all AGA requirements. *Minneapolis-Honeywell Regulator Company.*

CIRCLE (5) ON THE REPLY CARD

Leak Detector. A & H Engineering Company has developed a new material designed for detection of leaks. Known as "C-Leak," material is sprayed on piping; it spreads over surfaces and creates a growing cluster of live bubbles wherever a leak occurs. "C-Leak" is used for detecting gas and air leaks in piping, tubing, cylinders, tanks, evaporators, condensers, or any system that can be put under air or gas pressure for testing purposes. *A & H Engineering Company.*

CIRCLE (6) ON THE REPLY CARD

Portable Pipewall Gage. Industrial Nucleonics Corporation has announced the first of a new line of products for the process industries. Designated the Accu-Ray Portable Pipewall Thickness Gage, unit permits quick, easy, nondestructive pipewall thickness measurements. Gage is completely transistorized, lightweight, and measures absolute pipewall thickness directly on pipes ranging from 2 to 8-in. Measurement unit, which gives a reading independently of pipe diameter, maintains a permanent calibration. Since the principle of radiation absorption is used, nonferrous or plastic piping in the ranges specified may also be measured. *Industrial Nucleonics Corporation.*

CIRCLE (7) ON THE REPLY CARD

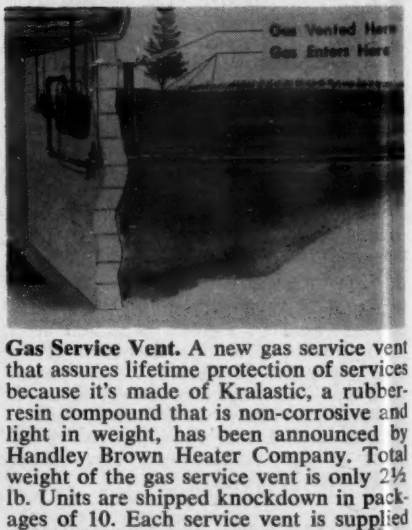
Pipe Thread Protectors. New, patented, color coded, pipe thread protectors are now available from Protector Products, Inc. Precision molded of polyethylene, the protector caps cannot damage pipe threads. Interior surface of the caps is tapered at the same angle as the thread so that there is contact for the full thread length. This increased gripping surface prevents cap from being removed accidentally. Available in either open end or closed end styles, protectors are molded in colors to indicate size. The ¾-in. size is red, ½-in. and 1½-in. sizes are black, and the 1-in. is blue. *Protector Products, Inc.*

CIRCLE (8) ON THE REPLY CARD

Hydra-Hammer. Larger engine and heavier hammer on the new model SPHH-1000 Ottawa Hydra-Hammer effect greater production on all pavement breaking, cutting, and backfill tamping jobs. New model includes many features — traverse tower arrangement, hydraulically controlled laydown, engine cover, rear

fenders, adjustable seat, flange type tools, and combined power brake and clutch control — that are also standard on all other Ottawa Hydra-Hammers. The 7500 ft/lb blow development by unit can be controlled so that the maximum blow or minimum blow — as little as 100 ft/lb — can be used at operator's will. This makes it possible to compact heavy clay soils in 4- to 6-ft lifts, and light sandy soils over terra cotta pipe in as little as 18-in. lifts. *Ottawa Steel Division, L. A. Young Spring & Wire Corporation.*

CIRCLE (9) ON THE REPLY CARD



Gas Service Vent. A new gas service vent that assures lifetime protection of services because it's made of Kralastic, a rubber-resin compound that is non-corrosive and light in weight, has been announced by Handley Brown Heater Company. Total weight of the gas service vent is only 2½ lb. Units are shipped knockdown in packages of 10. Each service vent is supplied with solvent for easy assembly of component parts. Features include: Captures any stray gases; vents gas to the atmosphere safely; preserves warning odor of the gas; permanent and non-corroding; easily installed next to basement wall above the service; no cutting of service pipe required to install; can be installed on old or new gas services; no maintenance — lasts indefinitely; will not clog, or retain water, and supports itself — no weight on the service pipe. *Handley-Brown Heater Company.*

CIRCLE (10) ON THE REPLY CARD

New Equipment

Vertical Boom, Crawler Ditcher. New vertical boom, crawler mounted ditcher has just been announced by Barber-Greene as an addition to their line of crawler and rubber tire mounted, vertical boom, wheel and ladder ditchers. Designated Model

784, unit embodies the basic chassis of B-G's Model 774 wheel-type ditcher announced early in 1957. The vertical digging boom offers many new design features — including a maximum digging depth of 7 ft and bucket widths of 19, 21, and 24 inches. This variation in digging widths is achieved with a single bucket line varying the position or adding teeth to the individual buckets on the digging line. "Hydra-Crowd" is another feature of the unit. It is an all hydraulic crowding speed transmission that provides a range of forward crowding speeds from 0 to 31 ft per minute and an instantaneously available reverse speed of 15 ft per minute. Hydraulic brakes are used through the crawler drive differential to provide smooth, quick-response steering. The 8 ft reversible discharge conveyor is hydraulically driven in either direction at belt speeds that vary from 250 to 630 ft per minute. Boom hoist is also hydraulically controlled. *Barber-Greene Company.*

CIRCLE (11) ON THE REPLY CARD

2-Way Radio Equipment Transition. New development by Motorola called "Dual Squelch" has been added to its "Private-Line" Radiophones to open the way to gradual conversion on a system to private, interference-free mobile communications. Development also diversifies use of the equipment, and permits noise free channel monitoring. Through the use of an exclusive tone code squelch, "Private-Line" receivers open up only to messages originating in its system. All unwanted traffic, noise, and interference is blocked out. With a noise squelch, a fleet owner can modernize to "Private-Line" system on a gradual basis, since during the transition period, the "Dual Squelch" base station can receive from both the "Private Line" and the "non Private-Line" mobiles in the system. After a system is fully converted to "Private-Line" the Squelch unit allows noise free monitoring of the channel before transmitting. Available in the 25-54 mc., 144-174 mc., and the 450-470 mc., mobile FM 2-way frequency bands. *Motorola.*

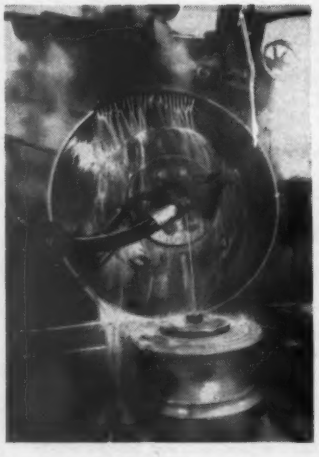
CIRCLE (12) ON THE REPLY CARD

Loosening Solvent. Kano Laboratories has developed a product, "Kroil" designed to dissolve rust and dried grease, and supply lubrication to rusty nuts, bolts, shafts, bearings, pipe threads, etc. A chemical solvent for loosening frozen parts, Kroil penetrates into spaces smaller than a millionth inch. Dissolves gum, rust, and corrosion, and supplies lubrication. Also available in a 12 oz aerosol pressure can. *Kano Laboratories.*

CIRCLE (13) ON THE REPLY CARD

Joe Roughneck's solid source of supply...

API CASING | API TUBING | API LINE PIPE



Wheel of plenty! Welding pipe by electric resistance weld process. Lone Star API pipe is fully normalized.

Joe Roughneck, of course, is symbolic of the men who have made the fabulous oil and gas industry tick . . and Lone Star Steel's huge completely integrated plant is right in the middle of Joe's workshop. Lone Star pipe is quality-controlled from mining of ore to finished pipe. In addition to operating day and night to supply Joe's pipe needs . . Lone Star is building new and even larger facilities.

Neighbor, wherever you are, specify Lone Star and we both get a good deal!

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Rotary Compressor. New 600 cfm rotary compressor, reputed to have as much as 30 percent greater operating efficiency and less than 50 percent as many working parts as current models, has been announced by Davey Compressor Company. Designated Davey Hydrovane Rotary 600, unit is said to be only multi-stage rotary compressor with a single free-floating rotor. Latter is so located that it is constantly concentric with one side only of the stator; its blades are segmented, inserted radially in longitudinal slots and move continuously in a straight line from the stator center without "cock" or bind. Other new features include both primary and secondary intake air cleaners, 3-stage oil separator and single adjustment vacuum-hydraulic, supply-demand control. Sight windows are provided for visual inspection of lube oil conditions and the oil separation process. Model is available in 4-wheel trailer and skid mountings. *Davey Compressor Company.*

CIRCLE (14) ON THE REPLY CARD

Flexible Gas-Vent Elbow. A flexible elbow with several first-time features for Type B gas-venting systems has been announced by Dura-Vent. With this one double-wall, air-insulated elbow, turns of any angle from zero to 90 deg can be made easily. Another new feature is the continuous insulating air space between the inner and outer walls of the elbow. Although elbow is in three sections that can be rotated with respect to each other, by design the air space is not interrupted at either joint. This prevents formation of hot spots. Unit is also shake-proof. Sections cannot shift with respect to each other as a result of vibration from traffic or motor drives in the building. Elbow has enough internal play or flexibility so that horizontal or sloping runs from it do not set up stress concentration. In a rigid elbow these may lead to rupture. *Dura-Vent Corporation.*

CIRCLE (15) ON THE REPLY CARD

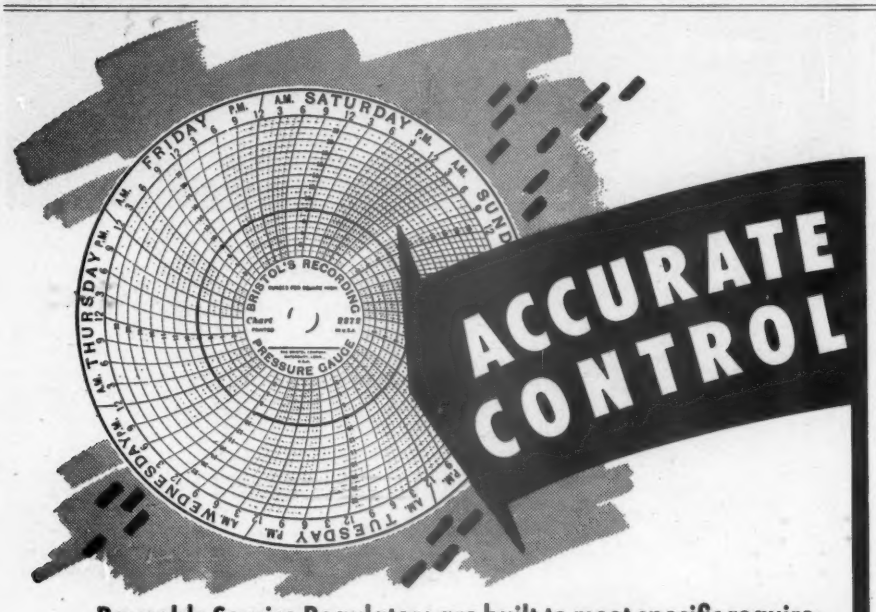
Pipe. The Steel Pipe Division of Valley Manufacturing Company, Valley, Nebraska, is now producing 12, 12¾, 14 and 16-in. diameter pipe, from 12 gage up to and including .219 wall thickness. Pipe is manufactured in new continuous mills, using latest automatic electric butt weld process and CO_2 gas. Pipe conforms to ASTM-A139 Grade B specifications, and API 5L standards. *Steel Pipe Division, Valley Manufacturing Company.*

CIRCLE (16) ON THE REPLY CARD

Pipe Squeezer. Versatile, hydraulic tool developed to requirements of a leading American gas utility company for quick, simplified gas line repairs and maintenance is now available from Regent Jack

Manufacturing Company. Regent Flow-Stop Pipe Squeezer consists of a hydraulically operated ram and a pair of jaws that clamp around the pipe. Unit can be used in relocating service lines and mains, and in repairing leaky and ruptured lines and mains. Two models are available — for heated and cold pipe. *Regent Jack Mfg. Co., Inc.*

CIRCLE (17) ON THE REPLY CARD



Reynolds Service Regulators are built to meet specific requirements — years of operation in the field through a complete range of operating conditions have proved not only their superiority but their durability. With parts so precisely machined for each model that they are completely interchangeable. The accuracy you require in performance is assured.

MODEL 10

Dead Weight or Spring Type, with or without Mercury Seal, or Dead Weight Safety Seal or diaphragm operated relief valve. All working parts are so accessible as to be interchangeable without removal from pipe line.

MODEL 20

Dead Weight or Spring Type, with or without Mercury Seal, or Dead Weight Safety Seal or diaphragm operated relief valve. All working parts are so accurate as to permit complete interchangeability in shop.

MODEL 30

For horizontal or vertical connections, with or without removable valve pocket. Available with either Spring or Dead Weight adjustment. With or without Mercury or Dead Weight Safety Seal or diaphragm operated relief valve.

Reynolds Gas Regulator Co.

ANDERSON, INDIANA, U. S. A.

GAS CONTROL SINCE 1892

"Boss, have we got a wrench like this that points the other direction?"

Peak Shavings

. . . . with laughing gas

Bottles and Bait: A puzzled small girl watched a party of fishermen putting off in their boat.
"But mommy," she asked, "do the fish like all that beer?"

You never realize how hard it is to drive a bargain until you buy a second-hand car.

A loud speaker does not always get the best reception.

"What did the beaver say to the tree?" "It's been nice gnawing you."

Egotism is something that enables the man in a rut to think he's in the groove.

The judge's expression was not unkind as he leaned over the bench and addressed the little man before him.
"So you're a locksmith?" his honor mused. "And pray tell, what was the locksmith doing in a gambling dive when he was arrested?"
The prisoner, taking courage, grinned back. "He was making a bolt for the door."

There are more important things in life than money — but they won't go out with you if you're broke.

The course of true love never runs up a big light bill.

Pilot Light Definition: P.S.I., allegedly, the initials of the world's first gas engineer, Paul Swearington Ipswich.

The toothless termite went into the tavern and asked, "Where is the bar tender?"

No Electrolysis

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STRAIGHT & REDUCING COUPLINGS

SOLDER & FLARE COPPER UNIONS

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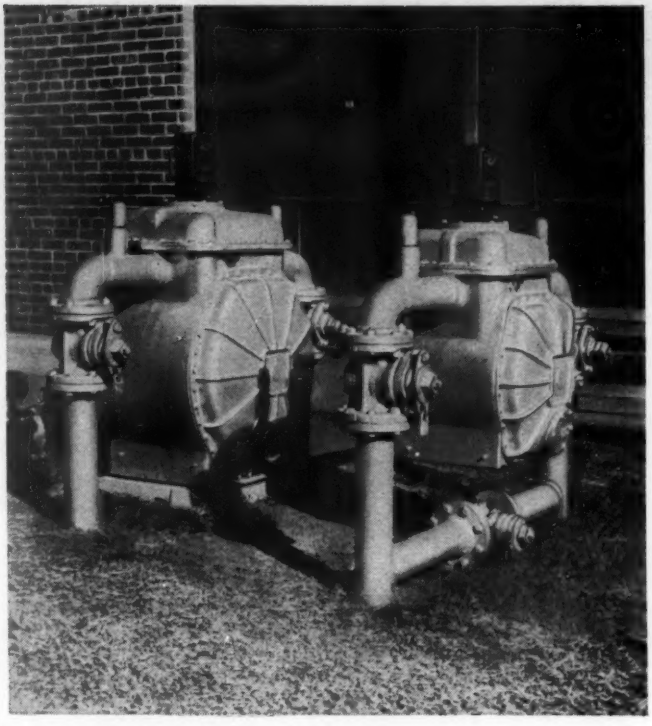
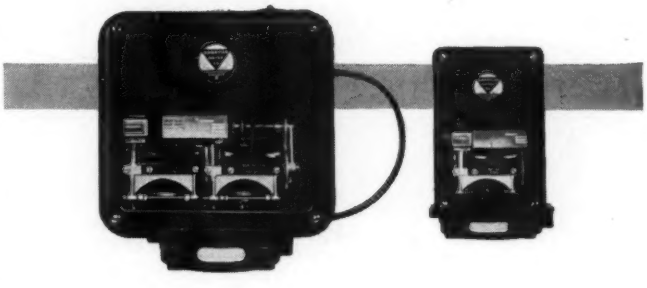
Makers of famous MAYCO Nylon Dielectric Bushings



Temperature and pressure compensated metering continuously and automatically



American® BASE VOLUME INDEXES register gas quantity at standard conditions of base temperature and base pressure. BASE PRESSURE INDEXES automatically multiply volume at pipe line conditions by the pressure factor and indicate quantity at base pressure on a straight reading index.

Operation of both instruments is continuous with all functions performed mechanically through special gearing. Indicated totals are always accurate.

For full information, consult your American Meter representative.

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SUPPLIERS TO THE GAS INDUSTRY for Ironcase, Tinned Steelcase, Aluminumcase and Welded Steelcase Meters • American-Westcott Orifice Meters Instruments • Reliance Regulators • Apparatus • Valves

Bulletin Board

NEW BOOKS...BROCHURES...CATALOGS

For more information on items described here in brief, use the handy reply card and circle the corresponding numbers

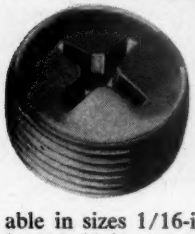
Gas Distribution Equipment. New 16-page, two-color catalog featuring complete information on the Normac line of fittings, couplings, clamps, and related materials has just been released. Catalog contains illustrations and specifications on all items, including malleable couplings, ells, tees, adapters, and sleeves; insulating gaskets; self-locking joints; service head adapters; reducing adapters; iron-body, brass-core cocks; bell joint clamps, and meter bars, plus packaging information. Catalog is handy 8½ by 11 in. size with identifying tab. *Norton-McMurray Company.*

CIRCLE (61) ON THE REPLY CARD

The Surface Story is the title of a new 28-page brochure issued by Surface Combustion Corporation. Three-color book describes all activities in which the corporation is engaged. Contains brief descriptions of the equipment engineered and built by the Surface Pelletizing Division, Steel Mill Division, Heat Treat Division, Glass Division, Webster Engineering Company — Boiler Burner Division, Kathabar Air Conditioning and Drying Division, Janitrol Aircraft Division, and Janitrol Heating and Air Conditioning Division. *Surface Combustion Corporation.*

CIRCLE (62) ON THE REPLY CARD

Headless Pipe Plugs. Slip-proof, cross slotted, headless pipe plugs have recently been developed by Pipe Plugs, Inc. These plugs are cold rolled, cold formed, and dryseal threaded to eliminate leakers, and have been designed to replace other styles of pipe plugs. Plugs are available in sizes 1/16-in. -27, ⅛-in. -27, ¼-in. -18, ½-in. -14, ¾-in. -14, and 1-in. -11 ½-in., in steel, aluminum, brass, stainless steel, and everdur. They may be ordered in breather vents with porous bronze insert, or permanent "Alnico" magnet attached. Free literature. *Pipe Plugs, Inc.*



CIRCLE (63) ON THE REPLY CARD

Plastic Pipe Fittings. Literature on the precision-made Dur-X Nylon fittings recently developed by Franklin Plastics, Inc., for use with plastic pipe is now available. Fittings are made of top-quality nylon resin, and will not corrode or rust. During manufacture they are subjected to a special toughening process which enables them to withstand impact blows as high as 75 ft/lb. Other features include deep accurate standard IPS threads and a hexagon hub which provides a gripping surface for ordinary wrenches. Smooth inner bore speeds liquid flow and miniature serrations on areas beneath the clamp assure "bite" inside the plastic pipe, thereby, eliminating any chance of leaks. Dur-X Nylon fitting sizes run from ½ through 2-in., and include insert X male thread adapter, insert coupling, insert elbow and insert tee. *Franklin Plastics, Inc.*

CIRCLE (64) ON THE REPLY CARD

Commercial Water Heater Catalog. Ruud Manufacturing Company has published a newly-revised commercial catalog that describes their complete line of commercial gas water heaters. Seventeen models are presented in AGA Use Approval Classifications. Data on application, construction specifications, controls, hot water deliveries, and space requirements are included. Catalog also contains information on Ruud equal-flow manifold assembly for multiple-unit installation of Sanimaster gas water heaters. *Ruud Manufacturing Company.*

CIRCLE (65) ON THE REPLY CARD

BOOKSHELF

Centrifugal and Axial Flow Pumps, *2nd ed., by A. J. Stepanoff, published by John Wiley & Sons, Inc., 440 Fourth Avenue, New York 16, New York. Pages, 402. Price, $12.00.*

Second edition of "Centrifugal and Axial Flow Pumps," has been revised and expanded to include the considerable progress in the theoretical reasoning, design, and application of centrifugal pumps, which has appeared since the publication of the first edition. The theoretical treatment of the impeller action and casing performance and the method of presenting experimental information have been retained by the author. New topics dealing with theory, design, and application have been included. Major additions are: New chapter on "Water-Hammer Problems in Centrifugal Pump Systems," new material on centrifugal-jet systems; thermal cavitation criterion to correlate cavitation data on the basis of physical and thermal properties of liquids; new viscosity chart; complete characteristics of axial and mixed flow pumps, and numerous design refinements and the latest data.

Elements of Heat Transfer, *3rd ed., by Max Jakob and George A. Hawkins, published by John Wiley & Sons, Inc., 440 Fourth Avenue. New York 16, New York. Pages, 317. Price, $6.75.*

Third edition of "Elements of Heat Transfer" incorporates the latest techniques and trends in engineering education. Principles and their applications to simple problems remain the book's base, with the newer material added as modern usage suggests. Final chapter on mass transfer is entirely new, and discusses the similarity between heat and mass transfer. Also new are: A table on thermal conductivity of liquid metals; a section on the use of equivalent circuits for the solution of heat transfer problems; additional material for the analysis of engineering systems, and sections that cover the heating of liquid metals in turbulent flow-through pipes, the hydrodynamic and thermal boundary layers, convective heat transfer at higher velocities, and the analogy between electrical and thermal circuits for convective heat transfer. A section on gas radiation has also been added to this edition.

2-Way Mobile Radio. General Electric's Communication Products Department has published a new 38-page brochure on two-way mobile radio equipment. Booklet shows the wide range of equipment designed to fit individual needs based on present FCC rulings. It also tells how today's units are being engineered with future needs in mind, considering such factors as future FCC policies that may affect both public and private radio systems. Topics covered include: "what's inside the case," power, frequency, bandwidth, voltage, remote and repeater operations, and descriptions of cases, cabinets, and mountings. *General Electric Communication Products Department.*

CIRCLE (66) ON THE REPLY CARD

Orifice Meters. Five new bulletins describing orifice meters and instruments have just been completed by American Meter Company, Inc. Literature includes Bulletin 401, *Integrating Orifice Meters;* Bulletin 402, *Gas Lift Meter;* Bulletin 403, *Two-position Controller for parallel meter operation;* Bulletin 404, *Dri-flo Orifice Meter;* and Bulletin 405, *Remote Pilot Unit for remote loading of pressure regulators. American Meter Company, Inc.*

CIRCLE (67) ON THE REPLY CARD

Mobile Machine Shop. Davey Compressor Company has just issued a new bulletin, descriptive of its complete line of mobile machine shops. Illustrated with photos and blueprints of typical shops, the leaflet describes truck-mounted units designed to meet needs of users operating over extensive areas. Shop assemblies vary from relatively simple items of power equipment to large collections of tools and accessories that are in reality, complete maintenance and repair depots "on wheels." Basic units are air compressors and power and welding generators. These are driven direct from the truck engine through a Davey heavy duty power take-off. Shops can be mounted on practically every make and model of truck. *Davey Compressor Company.*

CIRCLE (68) ON THE REPLY CARD

Standard for Incinerators. A revised approval standard for domestic gas incinerators stressing smokeless-odorless performance has been approved by the AGA Approval Requirements Committee to be effective January 1. The standard applies to new designs of domestic gas incinerators which are essentially smokeless and odorless in operation and have fly ash free effluents. Standard incorporates provisions outlining new test procedures used to evaluate (1) incinerating effectiveness, and (2) smoke, odor, and fly ash elimination characteristics. New test procedures and other revised construction and performance specifications have been incorporated in the standard to upgrade this type of equipment in light of recent advancements of the incinerator industry and as the result of extensive research on gas incinerators by AGA Laboratories. Copies of approval requirements in typewritten form are available now. Printed copies will be available at a later date. *AGA Laboratories.*

CIRCLE (69) ON THE REPLY CARD

Superior manufactures all sizes of meters from 80 to 7500 cfh.

Income with a future...

90,000,000 gas-fired appliances in use today...
125,000,000 more ten years from now...
33,000,000 to go into new homes yet to be built.

That's future income for the gas industry... income that the sustained accuracy of Superior meters will help safeguard.

Long-term accuracy is the "credo" of Superior's career-engineers... of their long-service meter craftsmen who have followed through with modern tooling and precision assembly. Step-by-step testing... taking advantage of the latest developments in quality control techniques... eliminates binds and friction... stops trouble before it starts.

You buy wisely when you specify the enduring accuracy of Superior meters for your utility. The meters you buy today protect your profits tomorrow.

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15,000 cu. ft. per hour capacity, complete with all mixing and vaporizing equipment controls and safety devices. Includes 1 — 18,000 gallon mixing tank; 1 — 14,000 gallon liquid storage tank; 1 — 8,000 gallon surge tank.

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Hulman Building, Evansville, Indiana

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Gracious Living with Decorative Gas Lighting

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SAVE MONEY, TIME, CALL-BACKS!

The Amazing AQUA VALVE BOX LOCATOR

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- NATION'S MOST WIDELY USED LOCATOR!
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